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LECTURES
ON
VETERINARY MEDICINE,
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BY
MR. YOUATT.

LECTURE XXXII.

THE CRANIUM OF THE HORSE—THE FRONTAL BONES—SINUSES.—INFLAMMATION.—PERFORATION OF THE FRONTAL BONES.

Difficulty of the Subject.—Gentlemen, I approach the next, or that which ought to have been the first division of our lectures, with mingled pleasure and fear. I cannot forget the difficulties and perplexities with which I was environed, oppressed, dismayed, when, like you, I began to study the anatomy and the functions of these organs by which animals, biped and quadruped, are rendered conscious of surrounding objects, and enabled to move and to act among them. There was an intricacy, a mysterious complexity about every part of the nervous system, that long baffled my most anxious efforts to unravel or to understand. Can I then hope to render that plain to you which was so incomprehensible to me?—hence my fear. But some master minds have been at work since that time; the magic wand of classification has been waved over the confused and puzzling mass; and order, harmony, and beauty, have sprung into view—hence the pleasure with which I invite you to the consideration of the sensorial system.

The first and the most important division of our subject, was into the systems of animal and of organic life—the first including the mechanism by which external impressions are conveyed to the brain, and sensations are there produced, and the materials of intelligence furnished; and by which also volitions are conveyed from the brain to the organs of voluntary motion, and we are enabled to connect ourselves with, and to profit by, those objects of the existence of which the sensitive nerves had rendered us conscious;—the second confined to circulation, respiration, digestion, secretion, and the other simple functions of life itself:—these systems proceeding from different sources, or referable to different centres:—in a manner independent of each other, yet continually anastomosing for their mutual benefit.

Division of the Animal System of Nerves.—This plain and simple division removed, or materially lessened many of our difficulties—but still, when we entered on the consideration of any portion of the animal system of nerves, there was perplexity enough and to spare; and to trace a single nerve from its origin to its ultimate destination, unravelling all its intricacies, and comprehending the meaning of them all, afforded labour for weeks to the most diligent and talented student. Then came the subdivision, little inferior in importance to the first, and immortalising the name of Bell—the divisions of the spinal chord—the six columns referable to distinct functions—the central ones of the superior surface devoted to sensation—the corresponding ones on the inferior surface to volition—the track of medullary matter belonging to these columns distinctly traced up into the brain, and the functions of each referable to different portions of the brain—the singularly different manner in which the nervous fibriculi spring from the chord, and approximated to each other, and become enclosed in one common sheath, yet intermingled not in their substance or their power, but constituting a compound nerve of sensation and volition:—the satisfactory experiments by which this was proved; the facility with which by cutting or tying either of its roots it could be deprived at our pleasure of its motor or its sensitive power,—here was a clue afforded to all the labyrinthian anastomoses of these nerves—the union of their motor fibrils to produce the consentaneous action of numerous muscles, for the power of many is combined in the performance of the slightest motion; while the sensitive fibrils

probably pursue their course, with little intermingling, to limit the region of pain, and to secure the simplicity and perfection of the sensation.

The Lateral Columns.—The discovery of the lateral columns of the spinal chord, also contributed materially to the simplification of the nervous system generally, and to the rapid improvement of physiology—not to be traced into the brain—proceeding from those nuclei of medullary matter—those little brains, the corpora olivaria—placed between the sensitive and the motor columns—possessing the motor origin and the sensitive ganglion—combining the power of the two, yet in a singular way combining it, and evidently for a peculiar purpose—being, as it were, the motor and the sensitive nerve, not of the respiratory alone, but of the organic system generally, for it goes to all the thoracic and abdominal viscera and leaving to the ganglial nerves proceeding from the superior cervical ganglion, or those radiations of organic influence from the semilunar ganglion—leaving, I say, to them the chemical or the vital power of secretion and nutrition.

Such is an outline of the path we have to travel for a few lectures—interesting, and not I trust so mysterious as the nervous system was once supposed to be.

The Brain the Common Sensorium. — I will commence with the nerves of animal life. I will not enter into the dispute, whether the nerves are prolongations of the brain, or the mere conductors of impressions to the brain and of the power of motion to the muscles, but I will consider in popular language the brain as the common sensorium of animal life, every sensation being referred to it, and the power of voluntary motion being derived from it, or its prolongation in the spinal canal.

The Cranial Cavity.—I find the brain in a bony cavity situated in the postero-superior part of the head of the quadruped. This cavity is rounded above, and flattened below—it is broader anteriorly than posteriorly—longer than it is wide in the proportion of about seven to four, and wider than it is high. It is composed of several bones. The *frontals* form the anterior portion of the roof, and the superior and anterior portion of the side walls; the parietals constitute the central and greater part of the roof, and the central and superior division of the sides; the *temporals* occupy the lower portion of the sides; the *occipital* the postero-superior part of the roof—the whole of the back wall, and the posterior division of the floor; while the anterior portion of the floor, the antero-inferior one of the sides, is made up of the ethmoid bone, and in the centre of the base is found the sphenoid bone.

Why so many Bones?—So many bones enter into the construction of the cranium,—not that, imperfectly formed at the time of birth, they may overlap each other, and enable the head to pass more easily and with greater safety through the pelvis, because, from the horizontal position of the body of the quadruped, the pelvic cavity may be considerably enlarged without fear of abortion; but the young quadruped is soon upon his legs and exposed to danger, and these numerous bones form so many nuclei or centres of ossification, by means of which the skull is more rapidly formed, and the brain securely defended.

The Frontal Bones in the Horse.—The frontals occupy that portion of the skull which we term the forehead. They are very irregularly formed and difficult to describe. Their external surface is somewhat convex in the young animal, and also in the cart-horse breed, but it becomes flatter in the adult subject, and always flat in the thorough-bred horse, and even sometimes depressed over the frontal sinuses. They are united together by a straight suture, a prolongation of the nasal one. The construction of this suture deserves attention. Superiorly it is dove-tailed, intricately so, but as we trace it downward it becomes less complicated, and at length is little more than a mere approximation of the bones. Above, the frontals have to protect the brain, but lower down the frontal sinuses alone are found. Nature proportions her care to the importance of the object. This is one of those instances of contrivance which it will be my duty to point out to you, and which I trust you will form the habit of observing and contemplating with interest and advantage.

Nasal and Lachrymal Connexion.—At the lower part of this suture, small processes of the frontal bones are received between the nasals. We will pursue the frontal on either side, now receiving within its anterior concave border the posterior convex extremity of the nasal bones, and there we find a suture denticulated and squamous—a suture of peculiar strength. The anterior apices of the nasal bones are separated from and unsupported by the anterior maxillary bones, except by a small interposed process. The effect of a blow falling there, can be easily calculated on the principle of the lever, and there must be a considerable weight or firmness of attachment at the other extremity, to prevent its being wrested from its situation.

We now arrive at the os unguis, the suture between which and the frontal, takes a direction upwards and outwards and then downwards, including a rounded process of the lachrymal bone, and bringing us to the inner canthus, or angle of the eye, where

again is a beautiful suture, dove-tailed and squamous, to give strength to the orbit.

The Supra-Orbitar Foramen.—We now enter the orbit of the eye, the roof of which is formed entirely by the frontal bone; and in that roof you will observe a foramen, the *foramen supra-orbitarium*, through which passes the *supra-orbitar artery*, a branch of the internal maxillary artery, which comes from the bottom of the orbit, and ramifies upon the skin and cellular membrane of the forehead, and, anastomosing with the anterior auricular and temporal arteries, forms a communication between the vessels within and without the orbit. The *supra-orbitar nerve* likewise escapes through the same foramen. It is a branch of the ophthalmic, given off as soon as it enters the orbit, and after climbing up to and crossing the roof, and giving ramifications to the fatty matter of the eye, and to the upper lid, finally expanding itself on the integument of the forehead.

The External Orbitar Process.—The projecting edge of the frontal bone, which thus forms the roof of the orbit, presents a peculiarly roughened appearance; it is formed by numerous minute bloodvessels passing into the bone for its nourishment, and some of them passing through the bone. A process is now observed, completing the superior and posterior part of the orbit, and resting upon the zygomatic arch, to which it gives additional strength. The process itself is exceedingly strong; it presents a sharpened edge anteriorly, a rounded one posteriorly, and terminates in a kind of tubercle on the zygomatic arch. The whole of this part of the frontal bone is exposed to considerable danger. Many a heavy blow falls upon it, and if we only considered the brutal way in which a tight collar is sometimes forced on, we should see sufficient necessity for strength here.

Fracture of it.—Mr. Pritchard had a case in which it was split through longitudinally from the foramen to the zygomatic arch: it was the consequence of brutal violence. Two detached portions of bone overhung the eye, and interrupted vision, and the integument was extensively lacerated. He carefully replaced the separated pieces of bone; brought the integument over them, and kept the edges in contact by means of silver pins, and in a fortnight the bones had united, the wound had healed, and the eye was uninjured.

The Orbit.—We now trace the frontal bone deep into the orbit. It becomes all at once very thin, for it is out of the way of danger, and nature adapts the strength of every part to the function it has to discharge, or its degree of exposure to injury. This plate is called the *internal orbital process*, and it occupies a considerable portion of the orbit. It is in a manner divided into two by one of the wings of the ethmoid bone, which is received into it as into a kind of notch, and projects far up the orbit opposite to the external orbital process.

The Temporal Fossa.—Following the posterior division of the internal orbitar process, we arrive at the *temporal fossa*—the pit or hollow above the eye by the depth of which we sometimes guess at the age of the horse. There is a great deal of fatty matter placed at the back of the eye to facilitate its motion. In illness, attended by loss of condition, and as old age comes on, a portion of this fat is absorbed; the eye sinks in the orbit, and the pit above it deepens, and by the degree in which this takes place we rudely guess at the age of the horse. It is said that some low dealers, who are capable of every species of cruelty as well as knavery, attempt to obviate this in some measure. If they have an old horse that does not much show his age in other ways, they puncture the skin at about the centre of the depression, and, introducing a small hollow tube, or even a tobacco-pipe, they blow into the orifice until so much air is forced into the cellular texture, that the hollow nearly disappears. This, assisted perchance by some *bishopped* teeth, may impose upon the unwary; but the deception may be easily detected by merely pressing upon the part, when the unnatural yielding and sinking and the escape of the air cannot be mistaken. In this fossa plays the coracoid process of the lower jaw, around which the temporal muscle is wrapped. The consideration of this belongs to the digestive system. More inferiorly in the fossa, the frontal bone comes in contact with the sphenoid, and at their point of union, or that of the ethmoid, the sphenoid and the frontal, is the *internal orbitar foramen*, through which escapes the lateral nasal nerve.

Leaving the ethmoid bone, we find the frontal in union with the squamous portion of the temporal bone. From the nature of the suture, this portion of the temporal derives its name; it is squamous, one bone overlaps the other like a shell. The temporal overlaps the frontal;—it is that additional strength which we should place on the side of the arch and near its base, to prevent its spurring out.

The Coronal Suture.—Emerging from the temporal fossa, we meet the parietal bone, which is united to the frontal by a suture, partly squamous and partly dove-tailed, and of great strength, for the brain lies immediately underneath. The suture first takes a direction upwards and forwards, and then somewhat posteriorly, and in a curved direction across the upper part of the forehead, including at the angle at the base of

the orbitar process, a portion of the parietal between the expansions of the frontal: and if we pursue it across the forehead, a convex projection of the frontals is received between the concave anterior extremities of the parietals.

The Levator Palpebræ Superioris.—There is one muscle only belonging to these bones on either side, the *levator palpebræ superioris*, or elevator of the upper eyelid. It arises by an aponeurotic expansion from the forehead; narrows, becomes pyramidical, and is inserted into the superior part of the upper eyelid, nearer the inner than the outer angle. It elevates the lid, and, as you will observe when you look at the horse, more towards the inner than the outer side. It unites itself with, or in a manner blends with, the orbicularis muscle, and is an antagonist to it; but more of this when we have to treat of the eye.

Phrenology as applied to the Frontal Bones of the Horse.—Of the truth of the science of phrenology as founded on the study of the human skull, it becomes not me to speak; but I confess that I can derive little illustration of it from the cranium of the horse. There is certainly a material difference in the form of the frontal bones in different breeds of horses. The convex and narrow frontal of the cart-horse, forms a striking contrast with the flat and broad forehead of the thorough-bred horse. These two crania will give you a tolerable idea of this; but you must study it in the living animal to comprehend its full effect: the broad and angular forehead of the one, the prominence of the eye consequent upon this, and the face gradually tapering from the forehead to the muzzle, are beautifully contrasted with the long and large face of the dray-horse, scarcely tapering at all downwards, and the forehead but little wider than the face:—the fire and intelligence of the one, with the quietness, if not the stupidity, of the other; but this belongs to physiognomy, and not to phrenology. No irregularity of surface, or development of any portion of the brain, is concerned here, no portion of the cranial covering is visible here; but the frontal sinuses, or the diploe continued above them, interpose between the brain and that portion of the frontal bone which covers it, and still higher up the temporal muscle enveloping the proper skull-cap, would bury from observation any irregularity of external surface, which the irregularities on the surface of the brain might occasion.

The Frontal Sinuses.—The frontal bone is composed of two tables or plates, which recede considerably from each other, and form large cavities, called *the frontal sinuses*. They extend, anteriorly—posteriorly, from an imaginary line drawn from the inner angle of one eye to that of the other, to another imaginary line drawn across the forehead at the middle of the orbitar fossæ. Laterally they reach almost from one supra-orbitar foramen to the other, and posteriorly a little further, for they penetrate along the rounded edge of the orbitar process. They are perfectly divided from each other by what seems to be a bony septum, continuous with the cartilaginous one of the nostrils; or rather by a double septum, for the plate belonging to each side is sufficiently evident in the macerated head. Is this separation between the frontal sinuses, like the perfect interposition of the septum in the nose of the horse, connected with that fatal disease of the Schneiderian membrane, to which it was foreseen the horse would be so liable? Was it designed to prevent the spread of mischief by cutting off all communication with the neighbouring parts?

Divided into Cells.—The sinus on each side is divided into various cells, but the septa here are imperfect; they all communicate; and they communicate also with the maxillary sinus, and with the ethmoidal and sphenoidal sinuses, and also by means of the valve under the superior turbinated bone, which I have described in former lectures, they communicate with the nasal cavity.

Extent.—The extent of the frontal sinuses varies in different subjects. In the fœtal colt they are scarcely discernible; in the colt of a twelvemonth old they are fairly developed, but they increase with the years of the animal, and in the aged horse they reach not only through the whole of the frontals, but penetrate far between the plates of the parietal bones.

Lining Membrane.—They are lined by a prolongation of the Schneiderian membrane,—thinner, as vascular, and highly sensitive. On this account it soon sympathises with and shares in the maladies of the Schneiderian membrane. In severe catarrh the horse expresses much pain when gently tapped on the forehead; and he rarely dies of glanders without the membrane of the sinuses being ulcerated, and the cavities filled with pus.

Inflammation of the Membrane.—The frontal sinuses are occasionally the seat of intense inflammation unconnected with any general affection of the Schneiderian membrane. The cause can rarely be traced. The horse is suddenly attacked; he refuses his food, he hangs his head, appears to be stupid, half unconscious; the mouth is hot, and the pulse hard and quick—it is like the beginning of staggers, and in its second stage it more resembles that disease, for a state of the highest excitation succeeds, and that as sudden as was the first attack: the pulse

becomes quicker and the artery throbs more violently; the nose and conjunctiva are now intensely red; the eye is prominent and glaring—a strange disposition to mischief is displayed; the horse kicks and plunges, and more particularly attempts to bite. It is now phrenitis; the inflammation has been communicated by contiguity to the membranes of the brain, yet the symptoms do not quite correspond with those of pure phrenitis. There is a half consciousness which is not observed in staggers, an intention to do mischief; and on the other hand, the incomplete consciousness distinguishes it from rabies, under which the horse knows perfectly what he is about, and artfully, as well as in the most determined way, seeks mischief for its own sake. The evident heat on the forehead, and the shrinking of the horse when struck on it, would characterise this disease in its early stage. The early progress of the inflammation may be arrested, but when the brain has become affected the case is usually desperate. For the best account of this disease, fortunately of rare occurrence, we are indebted to Mr. John Field, jun. It used to be confounded with phrenitis or rabies, and the animal was either destroyed or the proper measures were neglected.

Treatment.—Of course we should bleed, and that from the jugular, and copiously, and repeatedly. Cold applications, of which ice is the most convenient as well as effectual, should be made to the forehead, succeeded by blisters over the frontal sinuses. A strong dose of physic should be immediately administered. The trephine has been spoken of—we should certainly have the advantage of local bleeding, but by our laceration of the membrane we should probably increase the local irritation.

Post-mortem Appearances.—The membrane will always be found in the highest state of inflammation and injection, and the sinuses generally filled with clots of blood. The brain or its membranes will usually exhibit inflammation of the intensest character.

Its Chronic Form.—In a few cases it will readily yield to decided treatment; in others it assumes a more chronic form, recognised by a purulent and sometimes bloody discharge from the nostrils; unaccompanied by cough, and distinguished from glanders, the want of viscidity in the discharge by there being no ulceration in the nostril or enlargement of the glands, yet easily mistaken for glanders since it usually proceeds from one nostril alone.

Tumours on the Frontal Bones.—Small fluctuating tumours are sometimes observed on the frontal, or nasal, or malar bones, varying from the size of a marble to that of a large nutmeg, and oftener in the half-bred horse with much loose cellular substance under the integument than in the thoroughbred one. They are little cysts, with parietes of considerable thickness, and filled with a glairy, yellow, or limpid fluid. They constitute a little dissight, but there is no danger about them; I never knew one proceed to ulceration. In an early stage they may be readily dissected, or rather turned out; but when they have existed for some weeks or months, it will be prudent to let them quite alone. The long pressure of the dense cyst upon the bone beneath will frequently produce a partial or total absorption of it, and nothing will remain but the periosteum. I was once desired to open a large one on the frontal bone. I had not thought of this effect of continued pressure, and my lancet penetrated into the frontal sinus. Two months passed before I could heal the wound, and then it was accomplished by granulations which sprung up from the very bottom of the sinus.

Use of the Frontal Sinuses.—Of the use or function of the frontal sinuses, I have little to say—they may render the voice more sonorous—they may add to the exquisiteness of the scent, by the odoriferous effluvia loitering in the labyrinth of these cells—or this portion of the skull may have been left hollow, that the weight of the head might not be unnecessarily increased, the parts beneath being sufficiently secured by the arched form of the floor of the sinuses.

Trephined for the Discovery of Glanders.—There are few situations of greater perplexity and annoyance, than when we are called upon to decide on the existence of glanders in an incipient stage. You will please to recollect what I have said in former lectures of the difficulties with which we are here environed. I will suppose that there may be no visible ulceration in the nose—no adhesion of the gland, or even enlargement of it, but a slight discharge, and that not viscid, yet too constant. Experience has forced upon me the great but too often unsuspected danger of contagion. Thousands of horses are lost every year when no one dreamed of mischief. I must give a prompt and decided opinion upon the case—the convenience—the interest of my employer—my own reputation, depend upon it. Inoculation would be the most satisfactory test; but I may not have a condemned horse or a poor ass at hand, or I may a little doubt my right to experiment upon them. Can I detect the existence of ulceration in the upper portion of the nasal cavities? It has been thought that I can, by opening the frontal sinuses. I have spoken of their communication with the nasal cavity. I know precisely their situation. I feel for one of the supra-orbitar foramina—I trace an imaginary line across the forehead to the other,

and that line will mark the deepest part of the sinuses. I have them there more than an inch in depth, and a little on either side of the frontal suture, I can perforate with safety. I do not like the *spill-gimblet*; it is a mere carpenter's instrument, and does not look well in the hand of a veterinary surgeon. I use a small trephine, and then injecting a little tepid water into the sinus, it runs through all or the greater part of the cells, it enters the maxillary sinus, and perhaps the ethmoidal and sphenoidal cells, and finds its way into the nasal cavity, through the valve under the superior turbinated bone. If it is discharged from the nostril mingled with pus, I have satisfactory proof that there is ulceration somewhere in these cavities, and probably the ulceration of glanders; but if it is merely tinged with blood, or thickened with mucus, am I to conclude that the horse is not glandered? No, for I must remind you that by this operation you do not reach the superior meatus of the nose at all; and that the upper and most suspicious part of the central meatus, and where ulceration is oftenest and soonest found, is not even approached. You will also remember that glanders may long exist in an insidious yet highly contagious form without the slightest ulceration. You will then see the value—the little value of this operation. You may now and then detect the existence of glanders, but you can never be assured that a horse is not glandered.

Perforation of the Frontal Bones in the Treatment of Glanders.—It was formerly the custom to inject many liquids into the nostrils in this way, some of them harmless enough, but others most cruelly acrid. I have sufficiently reprobated this practice when speaking of glanders. It betrays alike unpardonable ignorance of anatomy, and of the nature of the disease. Never disgrace yourselves by having recourse to it, or to the equally objectionable practice of injecting caustic or irritating liquids up the nostrils.

Inner Surface of the Frontals.—The inner plate of the frontal bone is divided into two unequal parts by an irregularly-formed lateral septum, as you will see in this section. The superior portion forms the superior and posterior part of the floor of the sinus, and the anterior and inferior part of the roof of the cranium. The inferior portion forms the superior part of the roof of the nasal cavity, and the anterior and inferior part of the floor of the sinus. The cranial portion of the frontal bone covers the anterior lobes of the brain, and there it is thickest and strongest, and especially thickest where strength is most wanted—namely, at the centre or roof of the arch, to the security of which, next to that of the base, the attention of the builder is directed. We there find a considerable crest or spine extending from the crista galli of the ethmoid bone, along the frontal and parietal bones to the tentorium. In the centre of this ridge is a slight groove for the reception of the longitudinal sinus. The inner plate of the bone on either side of the ridge is studded with depressions, corresponding with irregularities on the surface of the brain.

ESSAYS
ON
ANIMAL ACTION.

By WILLIAM DOBSON, *Esq., Surgeon.*

No. V.

RESPIRATION AN INVOLUNTARY ACT.

Is respiration a voluntary or an involuntary action? The mind is conscious of the existence of the respiratory process during the waking hours only, and when the attention is applied to the organs of breathing. When the intellectual powers are engrossed with an interesting topic, as when occupied in solving a mathematical problem, or when we are listening to the effusions of an orator and a genius, or when witnessing a dramatic representation, breathing is repressed often for a considerable period, yet, even on those occasions, the phenomenon can scarcely be attributed to a voluntary act. The individual is unconscious of the condition of his respiratory organs. His mind is abstracted from every other object; he listens, he thinks, and he admires. But no sooner is the attraction removed, than breathing resumes its accustomed play. During sleep, when the intellect has ceased its operations, and when the senses are no longer perceiving surrounding impressions, and when every acknowledged voluntary action is totally at rest, respiration still goes on. The mind is now passive, it issues no mandates, all its operations are suspended, and it is therefore illogical and unfair to presume that so important an action as breathing can be executed constantly by mental dictates. That it can be accelerated or retarded at pleasure no one will dare to deny, and that we can maintain by an effort of the will, an increase or diminution of the chest's velocity, is equally tenable; but ought we thence to infer that volition is ever the exciting cause of the motions of the chest? That this can be imagined for a moment to be the case, argues a false conception, or a perverted

imagination, in him who thinks so. Does not voluntary motion imply the existence of volition? And does not volition equally imply the entity of mind? And if mind during sleep be annulled, or the material organs through which mind is exhibited be inapt for the exhibition, how can the effects be produced, or the ordinary consecutive phenomena occur? For voluntary motion to result, or motion to be effected with a determinate object, the will must have a specific intention in view; and where mind is not operative, it is impossible for a voluntary act to be induced. But metaphysical disquisitions will not solve the problem. Rational deductions from acknowledged data are what is intended. Then the conclusion which is inferred from these premises, and from a careful balance of the arguments adduced in favour of each doctrine, is, that *respiration* is most essentially, and most indisputably, an *involuntary operation*. Conceding that volition can exert a material influence over the movements of breathing, that it can regulate and subject them to its dominion for a limited duration, yet ultimately they emerge from its control, and play, even amidst the mental ruin to which the mind is liable; respiration will exist, when, to all evident appearances, every spark of mind, and every insignia of its essence, are annihilated. Need we refer for other illustration than to the apoplectic man, whose every animal action is abolished, and who merely vegetates like a plant which has a stationary existence? He respires, he survives. Motion to him is nothing, existence is nothing; he knows not of either; he is dead to every surrounding thing, incapable of appreciating or of influencing external bodies—unable to govern his material being—unconscious that he lives.

The influence of the cerebro-spinal system over the respiratory and circulatory functions has not been satisfactorily established. However zealously the subject may have been investigated by experimental physiologists, more especially by Le Gallois, and our talented countryman Dr. Wilson Philip, it is still concealed by the veil of obscurity. Two palpable errors appear to pervade the whole of the inquiries which have been instituted.

1st. When such extensive lacerations and sections, and destructions of the large nervous masses, are effected, it is both physically and morally impossible that the machine can perform its normal actions. If the functions do continue, they must necessarily be abnormal; if they cease, the inflictions ought *not* to be considered as the immediate cause or the proximate antecedence.

2dly. Numerous links in the chain of reasoning, numerous circumstances of vital importance, are entirely omitted. They perform an experiment and observe a certain effect, and infer that the effect is the *immediate* consequence of the experiment, whereas it is easy to perceive that intervening causes may exist.

Does it imply, that when the spinal marrow is divided above the origin of the phrenic nerves, and the diaphragm ceases to act, that the action of this organ is necessarily dependent on the brain or the spinal marrow? No; it evinces, that the entireness of the physical conjunction of two or more organs, is requisite for the maintenance of their individual functions in a state of integrity. Yet it develops the independency of each organ, and it displays the beautiful contrivance of a pre-established harmony in the works of nature, where numberless and varied operations are carried on simultaneously, and yet entirely independent of each other.

That the physical destruction of one portion of the nervous system impairs the faculties of another, whether it be contiguous or remote, can be readily understood, and is by every one admitted. But to say, when the spinal marrow is destroyed, either wholly or partially, and respiration is suppressed, that the functional power of the respiratory organs was derived from the mutilated part, is a ba in reasoning. What are the intervenin ks which may be presumed as *causes* in g the respiratory function to act? I a or, the *nerves*! I affirm that the phrenic erves *themselves* are adequate to excite the diaphragm to constant motion, and capable of maintaining this motion from the period of birth to the dissolution of the frame: That the phrenic nerves develope a principle, a force, which impels the muscles of the diaphragm to contraction and relaxation. Whatever this principle may be we know not, and it will probably ever remain inscrutable. Whether it be a mechanical, or a chemical, or a galvanic power, or depend on the supposed agency termed life, we need not inquire, for the inquiry would be vain.

The nerves must be in a healthy condition, have a constant supply of scarlet blood, and be conjoined with the surrounding nervous textures, that harmony of their functions may result.

In apoplexy, even in the most aggravated cases, a man can swallow. This circumstance has been adduced to support the idea of breathing being a *voluntary* operation. But it is only a negative argument, and it can be applied as a strong corroborative of the contrary notion. When any substance is received into the mouth of an apoplectic patient, it is swallowed; and the query naturally results, What directs the muscles

to contract? The phenomenon of deglutition implies the existence of two distinct agencies,—sensation and motive power, both of which are conceived to reside in the nervous system. Now in apoplexy, animal sensation, or rather cerebral sensation, is abolished, and its motor influence is never exerted; we may therefore presume, that impressions on the fauces are not perceived by the brain. Then we ask the question, By *what* are they perceived? I answer, *by the nerves of the fauces.* Reason and investigation concur to prove their ample sufficiency; and not only to perceive the impression, but to incite the deglutory muscles into action. Thus, when compressed by food, or when placed in contact, a mandate emanates from the nerves, and impels the muscles to contraction. The nerves are the doorkeepers to the alimentary canal, and they are empowered to fulfil their functionary duties, when the governing being is in a state of nullity, either during sleep, or in the apoplectic condition.

Now by the same parity of reasoning, which proves that "swallowing" in the apoplectic is involuntary, we may establish the position, and on a most undeniable basis, that *breathing* is ever an *involuntary* act.

When the body is healthy and vigorous, respiration is slow and easy; when disordered and debilitated, generally rapid and painful, and the will can effect no regulation of its movements. There are times when respiration is like the fiery steed, which has bounded from the hand of its rider, and though he may be able to check its course for a moment, it immediately regains its former velocity.

LITHOTRIPSY.

To the Editor of THE LANCET.

SIR,—I beg to transmit for publication an epitome of a memoir on the evacuating catheter lately read (in conjunction with the memoir upon the means of destroying stone by percussion, before the Academie Royale). Both papers are offered in competition for the Montlyon prize, which is periodically awarded by that institution.

Baron Heuteloup apprehends I was not sufficiently explicit in stating his reasons for changing the name of the operation from *lithotrity* to *lithotripsy*. He justly thinks, that the name of any art or science should not be lightly altered. But in the case of lithotrity he is sanguine the profession will agree with him, that a term which expresses only one of the operations resorted to, that of boring, which is the least efficient, is very inapplicable, and inadequate to represent the diversified resources which this art now possesses. The Baron has ventured to adopt the term *lithotripsy*, because it implies simply and generally the destruction of the calculus. In the case No. IV., of Mr. G., ætat. 62, related in the last memoir, I observe an erratum, whether clerical or typographical I know not; the stone is stated to be *ten* instead of *twenty* lines in diameter, a material circumstance, as there were *six* applications of the "percuteur." I have one or two cases illustrative of the new system nearly ready for printing, and which I shall send in a day or two.

I am, Sir, your obedient servant,
D. O. EDWARDS.

A MEMOIR

ON LITHOCENOSIS;*

OR THE ART OF BRINGING AWAY THE

FRAGMENTS OF STONE

PRODUCED BY THE ACTION OF THE

LITHOTRIPTIC INSTRUMENTS.

LITHOTRIPSY presents two principal problems for the surgeon to solve. The first is to break down the calculus, and the second to bring away the broken particles.

The efforts of surgeons hitherto have been exclusively directed to the solution of the first problem, which naturally demanded the more immediate attention, not only as being the most important part of lithotripsy, but because the necessity of the second was a consequence of the solution of the first.

It was always of the greatest importance to bring away the detritus in cases where the contractile power of the bladder was not sufficient to expel them, for if the fragments remain in the organ, the comminution of the stone would of course be useless.

There are many patients too, who, from a morbid or perverted sensibility, or from natural or acquired anomalies in the conformation of the parts, prevent the stone, when reduced, from being ejected. In such cases the hope of recovery is slight. Many instances might be given of patients being unable to void the fragments on account of the neck of the bladder being obstructed by fungous prominences or swollen veins. Others from an enlargement of the prostate gland compressing the neck of the bladder, and just allowing the urine to escape without any prosilient force. The same effect

* Λιθος, κενωσις evacuatio.

may be produced by the tumefaction of the third lobe of the same gland; and, finally, in other instances, the free issue of the detritus, by an irregularity in the irritability of the bladder, causing the muscles of retention, and those of expulsion, to contract at the same time, and thus obstruct the flow of urine, which can only be full and strong when the contractile agents proceed with a synchronous action. In fact, to support such a stream of urine as is adequate to carry away the calculous fragments, the muscles of retention must relax, whilst those of expulsion contract.

If we reflect on the numberless causes which may oppose the natural ejection of the broken portions of stone, we must admit the urgent necessity of inventing suitable means for their removal, and may feel surprise that lithotritic surgeons should have considered their art complete whilst such palpable deficiencies existed. Having met with many cases in which the necessity for contrivance for the abstraction of the retained particles was manifested, I have endeavoured to supply such a desideratum. At the commencement of my practice, I was grieved to meet with several patients whose condition, from causes already described, was such as to preclude all hope of recovery or relief. But more recently I have experienced a satisfaction proportionate to my former chagrin, in the successful application of an instrument which seems equal to all the wants that existed.

Before I present this instrument to the Institute, it may perhaps be advisable to give a general idea of the means which, even before the invention of lithotrity, were employed to bring away gravel, or the fragments which were occasionally produced by the spontaneous division of stones in the bladder. These means were not only feeble, but extremely dangerous in their application.

The first instrument chosen for this purpose was merely a gum-elastic catheter, which was introduced into the bladder in order that the debris should be carried through it with the urine, and that the larger pieces should be extracted by becoming entangled in the eyes or terminal apertures of the canula.

The second instrument was one proposed by myself. It was a metallic catheter, of which the stylet was to facilitate the carrying away of the sabulum, by allowing frequent injections of water. This stylet was also intended to serve in the comminution of such particles as might become entangled in the eyes, and project too much to admit of the withdrawal of the catheter.

It may easily be conceived, that the first of these means afforded very insufficient assistance, and must occasionally have subjected the patient to such serious mishaps as the laceration of the urethra by the spiculæ of the projecting fragments; and that the second, although a little more efficient perhaps, exposed the surgeon in an equal, or even in a greater degree, to the danger of lacerating the urethra. The metallic catheter being larger than the gum-elastic one, and consequently admitting the entanglement of larger pieces of calculus, such as the stylet had not power to break, and being but imperfectly constructed, proved, ultimately, but of little use. When a large piece of stone became fixed in the eye of either of these instruments, it occasionally became impossible to disengage it, and being drawn into the urethra, the surgeon has found himself in the dangerous dilemma, of either forcibly pushing the instrument back into the bladder, which is often impracticable through the barbed position of the fragment, or, which is sometimes the only alternative, by dragging it out with violence. No wonder can be expressed that laceration of the urethra, and sometimes infiltration of urine, should occur.

Unfortunately I have myself to deplore a similar unfortunate case. An old man of 82 years, upon whom I had operated successfully, was unable to expel the detritus. In order to help him, I employed the metallic catheter just mentioned. At first a considerable quantity of the powder came away, but a fragment having lodged in the eyes, and the instrument being drawn into the urethra, I could not by the most persevering endeavours rid myself of it. The only alternative left was to draw the instrument towards me; notwithstanding all the care and precaution with which I did this, the urethral lining was torn, and an infiltration was the consequence. As several fragments remained in the bladder, this was a state of things which required that lithotomy should be forthwith performed, and this was accordingly done. *

Struck from this moment with the fearful consequences of an accident arising from the inability of certain patients to evacuate the reduced portions of stone, I undertook with the greatest fear and unwillingness, any cases in which I could not foresee almost a certainty of the fragments being readily expelled by the spontaneous efforts of the bladder, and I even declined operating upon several, from these just apprehensions. Amongst these were a considerable number of patients advanced in years, and whom I considered fit for lithotripsy, from their frequently possessing, in addition to some of the usual causes which impede the expulsion of the urine, so little contractile power of bladder, as to render their re-

* Vide postscript.

covery, especially in cases of large calculi, at all times tedious, and sometimes hopeless.

The only way in which the beneficial effects of this important operation could be extended to old men as well as to adults, under these unfavourable circumstances, was to construct an instrument presenting large openings, and a capacious tube for the easy passage of the fragments, and possessing at the same time the indispensable property of preventing in every case the laceration of the urethra, whilst the surgeon is invested with absolute power over the fragments.

Such are the properties possessed by the *evacuating catheter*, which constitutes the subject of this paper. This instrument is composed of two different parts, the tube through which the fragments are expelled, and that part which serves to comminute those pieces of stone which are too large to pass through the tube.

The first is simply a steel catheter, varying in size according to the capacity of the urethra, it being a point exactly to fill that canal. It presents nearly the same curve as the common sound, and may be distinguished into a vesical and extra-vesical extremity. At the vesical extremity is a sort of cap, about *five* or *six* lines long. It is screwed to the body of the catheter, and forms its term; at an inch from the end are placed two large oval apertures, or eyes with smooth round edges. These openings are exactly opposite each other.

The extra-vesical extremity is quite straight. On this is fixed a stopcock, communicating with which is a cavity lined with cork, for the purpose of receiving the pipe of the syringe with which the bladder is injected. Opposed to the stopcock is a ring for the more secure holding of the instrument.

The other part of the instrument which I have called stylet brisé, or pointed stylet, is a solid piece of steel, presenting also a vesical and extra-vesical extremity. The former is composed of a succession of pieces of steel, so hinged together as to combine the properties of flexibility and strength. It also forms a definite curve, corresponding to the curve of the canula. At the extra-vesical extremity there is a large flattened portion, which may be grasped readily and firmly.

It may easily be conceived, that when this instrument is passed into the bladder, and an injection of water made, all the small particles are washed away by the returning stream, but fragments three or four lines in diameter less frequently pass through the catheter, and generally lodge in its vesical apertures, which, being of considerable size, and placed precisely opposite each other, are well adapted to entangle these large fragments. This circumstance, which was embarrassing when occurring during the employment of the instruments first invented, may be considered favourable, now that we possess the means of turning it to advantage.

When a fragment of considerable dimensions has fixed itself in the eyes of the catheter, and the flexible stylet just described is introduced, it is prevented from reaching the end of the tube by the fragment, which is broken by an impulse communicated to the stylet. The resulting particles are either repelled into the bladder or carried into that part of the cavity of the catheter which is situated beyond the eyes, a part about an inch in length, and which has been named "magazin." This process of catching and reducing the larger fragments may be carried on until the whole of the "magazin" is filled.

When this is done, the instrument is withdrawn, the top unscrewed, and the *debris* set at liberty. If necessary, the catheter may again be conveniently introduced. These fragments, which may have fallen from the eyes into the bladder, will easily be washed away by the injected water.

There is nothing to be feared, even if the canula with a piece entangled be drawn into the urethra, for the fragments would be immediately broken and the tube withdrawn, leaving the fractured particles in the urethral canal to be washed away with the first discharge of urine. This circumstance of a fragment being drawn into the urethra, certainly the most disadvantageous that can occur, is unattended with danger, and can indeed hardly ever happen, because the "eyes" being opposite to each other, the arrest of the fragment is indicated to the surgeon by a stoppage in the stream of water the moment these apertures are drawn to the neck of the bladder, and as it is at this spot the fragments enter the holes, it is never necessary to retract the instrument further at the urethra, and the possibility of laceration is avoided.

Thus the evacuating catheter is not only adapted to bring away the lapidous fragments, but also to their comminution, a property which entitles it to the appellation of lithotriptic.

The instrument may be straight or curved, according to circumstances; for there are cases in which sometimes one form, and sometimes the other, is objectionable. When the straight tube can be employed, it affords the surgeon the advantage of turning it on its own axis, and thus varying the position of the eyes, and directing them to different parts of the bladder. This advantage is important, and I have observed in general, that a larger quantity of detritus is more quickly obtained with this form when

it is applicable; but it is more irritating to the patient, and more difficultly managed.

I have successfully employed the evacuating catheter where the patients were incapable of voiding a single fragment, and would consequently have derived no benefit from having undergone the lithotriptic process. This is the instrument, with the aid of which Admiral C——, and Mr. O——, both of whom had enlarged prostate, were delivered of the detritus. It was employed in the case of Mr. Messenger, an old man of 72, who, although his urethra was capacious, could not evacuate a single fragment, either on account of a fungous state of the canal, or from the want of contractile power in the bladder. The application of this means was found indispensable in the case of Mr. S——, whose urethra was compressed by a scrotal hernia, and equally in that of Mr. K——, of Liverpool, in whose bladder there existed, opposite the neck, a tumour, which I believe arose from an enlargement of the third lobe of the prostate.

It was with the evacuating catheter alone I was enabled to rid Mr. G—— of his fragments, for in his case the contractions of the sides of the organ did not take place synchronously. In the case of Mr. Archer, the neck of the bladder was surrounded by varicose veins, and of course no force of stream could be produced. Indeed so successful have been the applications of this instrument, that I do not know whether it would not be advantageous to employ it even in cases where the patient has naturally the power of expelling the powder.

I have made use of this instrument before several of the most eminent medical men in London, and amongst others, Sir A. Cooper, Sir A. Carlisle, Mr. Brodie, Mr. Green, Mr. Travers, Mr. A. White, Mr. Aston Key, &c.

If the members of the Academie are of opinion that the "sonde evacuatrice" brings within the limits of lithotrity the numerous cases in which, besides the stone, there exist either natural or acquired obstacles to the free expulsion of the urine, and consequently to that of the fragments, these gentlemen will allow, that, as the inventor of the instrument, I am authorised to present myself as a competitor for the Montlyon prize. Consonant with the expressed wish of the Academy,—1st, It is totally different from the evacuating catheters hitherto employed, both as regards its manner of acting, its construction, and, above all, in the importance of the ends which it enables us to attain; and, 2ad, It is a progressive step towards perfection, by extending the sphere of lithotriptic utility.

Postscript.—It cannot be expected that complete success should attend the first applications of a new instrument. It is by meeting with difficulties that the inventor is enabled to improve upon his first design. This is the light in which we should view the present subject. The patient in whose case Baron Heurteloup employed the evacuating catheter with so unfortunate a result, was an instance in point, and may be associated in this view with another unfortunate case of recent occurrence. The patient had a very large stone in the bladder, and was operated upon by the new instrument acting by percussion. The "*percuteur*" was in a much less perfect state then than it is now. At that time only three or four of these instruments had been constructed, but now upwards of *sixty* have been made, and each one has in some respect improved upon its predecessor.

In the case to which I allude, the two beaks of the instrument which seized the stone, instead of coming close together, gave way, and remained about three lines apart, which prevented the instrument being entirely withdrawn from the urethra. Baron Heurteloup, rather than employ force to extract it, thought it safer to make a small incision in the urethra, such as are frequently made when small calculi are lodged there, in order to pass out the extremity of the percuteur, and unite the expanded branches by means of a pair of pincers. This he easily executed, and the instrument was safely withdrawn. The Baron, considering the advanced age of the patient and aware that the stone was broken in pieces, and that the incision into the urethra, though trifling, would render difficult to the surgeon and painful to the patient the manœuvres necessary for removing the fragments from the neck of the bladder, should they become entangled there, recommended the immediate performance of lithotomy. The operation was performed by Mr. Brodie, and the fragments extracted with more facility than the entire stone, which was six inches in circumference, could have been.

It is this circumstance which has given rise to the false report *of an instrument having been broken in the bladder, of lithotomy being performed to extract it, and of the patient dying immediately after the operation*, whilst, in truth, lithotomy was performed, not because what had been previously done rendered it absolutely necessary, but because it was deemed more advantageous to the patient to operate immediately, than to wait for the healing up of the small incision. The patient did not die immediately, but lived *nine* weeks after the operation, and would probably have recovered, were it not for his great age and feebleness, for the wound nearly healed, and the urine flowed freely through the urethra.

June, 1832. D. O. E.

CASES AND REMARKS

ILLUSTRATING THE EFFICACY OF

ALKALINE SALTS

IN ALLAYING

GASTRIC IRRITATION.

To the Editor of THE LANCET.

SIR,—Should you conceive the following illustrations of the beneficial use of certain *alkaline salts* will, at the present juncture, be interesting to your readers, I beg to place them at your disposal. The following sketch of three cases that have occurred in my practice within the last week, are only so far detailed as to establish the fact I have in view. Your most obedient servant,

PAUL SLADE KNIGHT.

Connaught Terrace, May 29th, 1832.

CASE I.

The first case was developed in a hale lady, remarkable for health and activity, aged 84. She was attacked shortly after dinner, on the evening of the 15th inst., first with faintness, and then with sickness, an excruciating pain and spasm of the stomach, and copious vomiting of all the ingestia, and then of a semi-transparent fluid, (serum and mucus mixed?) so as to excite the astonishment of herself and the bystanders, as they could not possibly conceive whence it could all come. The bowels were actively moved, but not with much pain, nor could I learn anything satisfactory as to the quality. I found her in bed; pulse weak, but sufficiently distinct, and about 80; this was two hours after the attack. She had taken some brandy and water, but it immediately returned. She had cramp in the legs, which yielded to friction with a warm hand, but her chief complaint was of a general and intolerable uneasiness, with extreme thirst, probably from the more fluid parts of the blood being greatly exhausted, for the spasm of the stomach and the vomiting were at the moment subsided, though her feelings led her to apprehend a return. I immediately gave her the following draught and pill.

℞ *Carbon. sodæ* ʒj;
Tinct. card. comp. ʒi;
Aqua ʒxi, *M. f. haust.*

℞ *Opii pur.* gr. j;
Subm. hydr. gr. iij;
Conf. rosæ q. s. ft. pil.

And to take *carbon. sodæ* ʒj. *carbon. am.* gr. iv, every two, three, or four hours, according as she should be awake, or affected with sickness or spasm.

16. She passed a good night on the whole; neither the sickness nor spasms had returned, and the thirst gradually abated; and with the aid of a mild aperient of pulv. rhæi she recovered.

CASE II.

On the 18th I was requested to see the lady's maid in the same house, a young, delicate, and ailing woman, about eighteen years old. On entering the street door I heard her piteous moans, although she was in bed in the attic. I found her suffering from extreme pain and spasms of the stomach, and in the right side, and cramps of the lower extremities, with a small pulse at 120; countenance very much sunken. When she had first complained of being ill, two grains of ant. tart. were given to her; and afterwards, when spasm of the stomach came on, the tin vessel, used on such occasions, was applied unremittingly, filled with hot water. She had vomited a large quantity of fluid, which I was told contained bile, as also did the stools, one of which was remaining, and which was of the usual cholera character, being in quantity from a quart to three pints, of semi-transparent fluid serum, with a large quantity of opaque white flakes at the bottom, of boiled rice and water appearance. I believe there was no bile whatever, nor were there any fæces. To take immediately.

Tinct. opii ʒss;
Lavend. f. ʒi;
Sodæ carb. ʒi;
Aq. menth. p. q. f. ʒiss. *M. ft. haust.*

℞ *Sodæ carb.* ʒj;
Pulv. arom. gr. iv. *M. ft. pulv.*
2da. q. q. hora sumend.

She retained the draught, and the spasm left her in half an hour, and never returned. She continued the alkaline salt three days, when all cholera symptoms having remained absent, other urgent ailments were attended to.

CASE III.

On the 20th instant, at four in the morning, I was called to Mrs. ——, aged about 50, a strong active woman. She had been attacked at eight o'clock the preceding night with violent cramp, pains in the stomach, and vomiting, to which, in a much less degree, she had been subject, and for which she took, during the night, seventy drops of tincture of opium, and hot brandy and water, neither of which afforded relief. I found her in bed on her left side, very much bent, and her head nearly resting on her bosom, shivering with cold, though hot bottles and hot flannels had been applied to

her stomach, and her limbs had been rubbed; her countenance was very much sunken, and, as well as her hands, were of a pale, dirty, or dark hue, but not blue; her pulse was very weak, though sufficiently distinct to be counted at about 80; tongue pale and flabby, and she complained much of its sticking to her mouth, but it did not occur to me to ascertain its temperature; that of the limbs was icy cold, and they were also moist, much colder than I have witnessed in some fatal cholera cases. She spoke in a whisper, although, if she exerted herself, she could speak louder and more distinctly, yet her aspect was healthy. She had vomited an immense quantity of fluid, so as to astonish her and the attendant, about three pints of which remained in the basin, and exactly resembled that of No. 1. The bowels had been only moved once, though great pain had been experienced in them. I wished to place her more comfortably in bed, but she declined, dreading that any motion would bring on the cramps.

Treatment.—Hot bottles to the stomach, and friction with the hottest flannels to the limbs.

℞ *Sodæ carb.* ʒj;
Pulv. arom. gr. iv, *statim sumend.*

This remained, and in half an hour I repeated the dose; and in another half hour I had the satisfaction to see that reaction had commenced. I then left her with directions to take a similar powder every hour. About two hours after I had left her, finding she remained free from sickness, she took some tea, which she soon brought up; after that she refrained, and confined herself to water, as I had directed, and she never had a return of vomiting, or of spasm, or of pain of the stomach or side.

At two a. m., I found her on her right side, free from all pain, looking cheerful; eyes bright and face flushed; pulse 80, and firm; body and limbs warm; and she complained of heat in the spinal canal. Twenty ounces of blood were taken with four cupping-glasses placed at equal distances on the vertebral column, the blood was florid, and firm, and inflamed, exhibiting very little serum.

℞ *Sodæ carbon.*;
Potassæ carb. a a. ʒiss;
Spt. æth. f. ʒss;
Aq. menth. p. hss. M. ft. cap. cochl. j, *ampl. 3d q. q. hord.*

On examining the state of the blood, however, I directed the mixture to be taken only two or three times a day, and thus the cure ended in convalescence; and in two days she walked round one of the squares; but says she has an indescribably unpleasant feeling, and that *her veins look blacker than usual.*

Here, Sir, we have three cases, all attended by some of the most serious precursory symptoms of cholera asphyxia, all suffering excruciating pains from cramps in the stomach and limbs, accompanied by violent vomiting, and a great discharge of fluids, &c., and one case fast verging to a state of absolute collapse, and all *instantly* relieved by ʒi doses of carb. sodæ, and by the same medicine, restored from all the cholera symptoms. The same thing has occurred in the practice of some of my medical friends in this neighbourhood, to whom, as a member of the Paddington Board of Health, I took the liberty to explain my views some time last winter; the pages too, Sir, of your Journal, bear ample evidence to the same fact—that is, the extraordinary power of the carbon. sodæ to allay *gastric irritation*, in which, I believe there is sufficient evidence to show, chiefly consists the main secret of curing this, as well as many other diseases of a febrile and spasmodic character, as I have, in a former communication, explained. Who but must attribute the success of the practice in the Cold-bath Fields prison to this principle, affected wholly by the alkaline salts there used, and I doubt not that ʒi doses of the carbon. sodæ given every one, two, three, or four hours, according to the urgency of the symptoms, with such additions of stimulants or opiates as the peculiarity of the case might indicate, would have answered fully as well—much better than the formula used. We are, I fear, Sir, too little acquainted with the chemical changes effected in the stomach of man, under the million of circumstances that influence its actions, to justify us in adopting theoretical views, involving nice and ill-understood distinctions. An acid of a peculiarly virulent quality seems the basis of all the mischief in cholera asphyxia, as I had surmised in a published letter this time last year, and ʒi doses of the carbonate of soda, is its appropriate and speedy remedy, as I also stated in the same letter. This method of cure has the advantage of the greatest simplicity, and may be safely trusted in the hands of any intelligent person, to be used the instant any spasm of the stomach comes on, and repeated every hour till the attendance of a medical person can be obtained, which, of course, in a case of this nature, will be with the least possible delay. Is it too much now to say that thousands would have been rescued from a premature death and horrible tortures, had the views which I published in *The Times* paper of June 21, 1831, been duly appreciated?

(See note at the end of this Number.)

THE SULPHATE OF INDIGO AS A TEST FOR NITRIC ACID.

To the Editor of THE LANCET.

SIR,—Having lately gone over a number of experiments with the sulphate of indigo, whose claim to be considered a test for nitric acid has latterly become a disputed point, perhaps you may think a brief statement of the results obtained, will perhaps tend to set the question at rest, and therefore not unworthy of occupying a column in your valuable pages.

In THE LANCET, of the 24th of March last, is an excellent paper on this subject by Mr. J. S. Hiley. With most of the observations made by that gentleman I entirely concur, and particularly can I bear testimony to the justness of his strictures on the experiments of Dr. O'Shaughnessy; but, in the meantime, he himself has fallen into some slight error. He states, as the result of an experiment, a solitary one I suspect, that hydrochloric acid does not completely discharge the blue tint of the sulphate of indigo. This is certainly a mistake, since, in repeated trials, I invariably found that the liquid was decolorised by that acid quite as effectually as by the nitric.

Having subjected the solution of indigo to the action of nearly every acid known to chemists, I can state with tolerable certainty, that three only have the power of dispelling the blue tint; these are, the nitric, the hydrochloric, and the chloric; and that but two classes of salts possess it, viz. the nitrates and the chlorates. The addition of a drop of sulphuric acid, which Dr. Liebig recommends to be made in every experiment, but which Mr. Hiley considers in every case superfluous, I have found to be useless when operating with the uncombined acids, but a necessary part of the process in all cases of testing salts. Since muriatic acid and the chlorates may readily enough be detected by appropriate tests, it follows that Dr. Liebig's process has still claims to be ranked among the best of those for the detection of nitric acid and its salts. It is true that several deoxydising agents, as the protoxide of iron, the protomuriate of tin, sulphuretted hydrogen, and chlorine, destroy the blue colour, but all these, not even chlorine excepted, leave the solution of a yellow, or greenish yellow colour, whereas nitric acid and the nitrates either render it completely colourless, or of a very faint straw hue. The best method of conducting the process is to pour a little of the suspected liquid into a small test-tube, then to tinge it *perceptibly blue* with the indigo solution, and having added three or four drops of sulphuric acid, to hold the tube over the flame of a spirit-lamp until ebullition has commenced, when the colour will have vanished, if nitric acid, or any of its salts, be present. I remain, Sir, your obedient servant,

R. W. THACKER.*

Elford, May 27, 1832.

DR. O'SHAUGHNESSY'S REMARKS ON THE PRECEDING LETTER.

To the Editor of THE LANCET.

SIR,—I have to acknowledge your kindness in permitting me to peruse the preceding letter previous to its publication, and I am further indebted to its author for recalling my attention to Mr. Hiley's paper in THE LANCET of March 24.

I believe I shall have little difficulty in showing, that on the chemical facts alluded to by both writers, the most perfect harmony exists between these gentlemen and myself. As to the medico-legal deductions from these facts, I believe that I can demonstrate that my opinions on the utter inapplicability of the sulphate-of-indigo test to *toxicological* chemistry, remain completely unrefuted.

In my first paper on nitric acid, published in your Journal on May 29th, 1830, I communicated the fact that I had discovered and demonstrated to my pupils in Edinburgh, that muriatic and sulphuric acid destroyed the colour of the fluid tinted slightly with sulphate of indigo, and that a mixture of sulphuric acid and muriate of soda produced the same effect. I described the mode in which the experiments were conducted. They were witnessed by numerous pupils who can bear me out in my statements. From these facts I concluded that, individually, the sulphate of indigo could no longer be regarded as a sufficient test for dilute nitric acid even in abstract

* Several letters on the subject which has occupied the attention of Mr. Thacker, Mr. Hiley, and Dr. O'Shaughnessy, have reached us within the last few weeks. We select that of Mr. Thacker for publication, but in order to save continuous reference to the question in dispute, we have forwarded it, before insertion, to Dr. O'Shaughnessy, out of whose paper, published in THE LANCET, May, 1830, the discussion has arisen, and now append the letter we have received in reply from him, by this means closing the argument in one Number.—ED. L.

chemical inquiries, while in *toxicological* chemistry it should be at once discarded, owing to the natural existence of *muriatic* acid in the contents of the intestinal canal.

In the interval which elapsed between the transmission and publication of my first paper, I pursued the inquiry still further. My stock of mineral acid having been accidentally exhausted, a new supply was obtained from a different establishment, before the second set of experiments were commenced. To my surprise the new sulphuric acid no longer decolorised the fluid, while the muriatic acid was increased in power. Following up this hint, I found that different specimens of acids acted so variously on the sulphate-of-indigo test, that one might be a perfect bleacher of the fluid, and a second be altogether destitute of this action. I further found that the chlorates, per-muriate of iron, proto-muriate of tin, sulphuretted hydrogen, and many other substances, discharged the colour of the reputed test for nitric acid, and the majority under parallel circumstances.

These results I published in a second paper which appeared in THE LANCET on the 19th of June, 1830. This paper appears to have escaped the notice both of Mr. Hiley and Mr. Thacker, whose experiments I may now illustrate by its assistance.

Mr. Hiley, on repeating the experiments performed before my class, described in my first paper, found that the sulphuric acid did not bleach the fluid, but that with the muriatic acid it "lost a little of its tint." Mr. Thacker, again, questions Mr. Hiley's correctness relative to the muriatic acid, and states "that in repeated trials he invariably found that the liquid was decolorised by muriatic acid quite as effectually as by the nitric." The truth is, that both gentlemen observed correctly. Different specimens of the same kind of acid possess different degrees of decolorising power, as I have stated in my second paper. The sulphuric acid, too, is that which most rarely bleaches the liquid. Of 15 specimens in my possession only two succeed, and these are impregnated slightly with sulphurous acid. Of 15 specimens of muriatic acid, eleven bleach the solution. One affects the colour slightly, and three are inert. On the cause of this difference I have not had leisure to make inquiries, and I will consequently offer no speculations about it.

We can now understand why the three observers differed so materially in their statements. I have also a word to offer on the medico-legal inferences which the subject suggests.

It is sufficiently proved by my experiments, confirmed by those of Mr. Thacker, that *muriatic* acid bleaches the test. Now muriatic acid existing in the stomach in the free state, and often in considerable quantities, could the medico-legal chemist presume to swear that he had detected nitric acid, if the indigo test had been bleached by the contents of the stomach? The answer is obvious. The test is therefore utterly useless in the medico-legal examination of any mixture having an acid reaction, and containing muriatic acid, or any of its compounds. Again, as to the applicability of the sulphate of indigo to the examination of the pure or diluted acid, we have so many preferable reagents, that it is absolutely not worth notice, while, for the nitrates, the morphia which I first pointed out, affords us decisive, simple, and infallible evidence.

Both the gentlemen to my surprise speak of "the difference of effect in point of time," and the "difference of tint between a yellow or greenish yellow, and a straw colour," being sufficient distinction between the effects of nitric acid, muriatic acid, the chlorates, &c. It is evident that these gentlemen forgot that, in the practice of medico-legal chemistry, we have usually to deal with turbid and discoloured fluids, in which these tints could not be distinguished. Even were the fluids for analyses sufficiently devoid of alien colour, I for one would not presume to give positive evidence on the strength of a shade of colour.

So much for the sulphate of indigo. If the subject really deserved debate, I might extend the argument much further. I shall only add that Dr. Christison, in his second edition, just published, fully admits the validity of the several positions I have advanced, and emphatically states that Liebig's test must be "abandoned altogether." —Treatise on Poisons, 2nd Ed. p. 145.

With respect to Mr. Hiley's remarks on two processes suggested in my first paper for detecting nitric acid—viz. one by the formation of the detonating cyanate, and the second by the formation of the nitrate of urea—I can only say that I fully agree with him in believing that neither deserves the least confidence, or is at all applicable to *medico-legal* analysis. They are both fallacious and difficult of manipulation. I cannot, however, give Mr. Hiley the merit of pointing out their defects, as they were pretty severely handled by myself in one of the commentaries to which Mr. Hiley alludes, and in which the comparative merits of the several processes for detecting nitric acid were freely considered.

I am, Sir, your obedient servant,

W. B. O'SHAUGHNESSY, M.D.

June 1, 1832.

GANGRENE OF THE MOUTH

FROM MERCURY.

To the Editor of THE LANCET.

SIR,—There is a very interesting case of gangrene of the mouth, produced by the violent action of mercury, related in the last Number of THE LANCET. This is an accident which will sometimes arise, even when the medicine has not been exhibited in excessive doses. In some persons a small quantity of this metal will produce almost immediate and most violent effects, but we are not in possession of a knowledge of the peculiarity of constitution upon which this susceptibility to its action depends. Your correspondent states that there is scarcely a case of gangrene in children, arising from this cause, to be found on record. At page 295 of my Compendium of Medical Practice, he will find a case, and the cause adverted to in the following terms:—"I have one remark to add with respect to the use of mercury. Children will take an immense quantity of it, without the salivary glands becoming affected; we ought not, however, on this account to give it incautiously, for it will sometimes happen that without salivation the parotid duct will be excited by it into violent inflammatory action, in which the parotid gland and the whole cheek will be speedily involved, and sphacelus, or a rapid ulceration, will be the consequence. I have seen both cheeks entirely removed by this process. Nothing with which I am acquainted has the slightest tendency to check its progress."

In this case very minute doses of hydr. c. cretâ (not more than a grain) in combination with bark, had been prescribed and taken twice a day for three weeks, when the child complained of soreness of the gums, and ulceration upon the inside of the cheeks. The medicine was immediately laid aside, but, on the following day, the ulceration had spread over the whole of the membrane lining the inside of the cheeks, and two small livid spots were to be distinguished externally directly over the terminations of the parotid ducts. These spots rapidly extended, and in seven days the whole of the integuments, and muscles of both the upper and under jaw, sloughed away, presenting the most ghastly and pitiable object I ever beheld. The patient was nine years of age.

Yours, very respectfully,
E. BEDINGFIELD.

Medical School, Stowmarket,
May 1, 1832.

JUVENILE APPOINTMENTS TO THE

DUBLIN CHOLERA HOSPITAL.

To the Editor of THE LANCET.

SIR,—Through the medium of your very valuable Journal, may I beg to take notice of a species of injustice, (not uncommon in the present day,) practised towards their junior brethren, by some who are, or imagine themselves, at the head of the profession?

I refer, Sir, to what has occurred in the appointments that have recently taken place for assistants to one of the Cholera Hospitals in Dublin. Immediately on the appearance of the disease in this city, a very extensive hospital was prepared, and it being necessary that medical men should be appointed who might be constantly on the spot, the surgeons of Stephen's and the Richmond hospital, having, by what right it is not easy to say, the disposal of these situations, immediately appointed a number of their own apprentices. The consequence is, that young men, some of them mere boys, not more than two or three years at the profession, are intrusted with the care and treatment of cholera patients, whilst others may be seen driving about the city and its suburbs to determine whether cases are cholera or not. Now, Sir, what I would complain of is, that whilst there are many licentiates, and even members of the college, who would have been glad to have held the situations, professional men are to be found who should so far forget the interests of the college, and of the profession at large, as, through selfish and interested motives, to place their own apprentices over the heads of regular and qualified surgeons. It may be said that those persons were appointed because others more eligible did not come forward; the fact is, that those situations, though refused by some of the pupils, were not offered to the licentiates of the college, nor was it known that there were to be such, until after the appointment had taken place, though I must here add, that there are one or two of these situations held by gentlemen who are in every way qualified to undertake them. I should be glad to ask those gentlemen who have acted in this manner, what is the use of having a degree from a college, where we see the very persons who are appointed to give that degree, declaring to the public by their acts the worthlessness of their diploma, and that whenever situations are to be held which require the practical surgeon, or to which emoluments may be attached, their own apprentices are in every way as capable and as well qualified to hold them, as the possessors of diplomas, which have cost them so much labour and expense to obtain, and

from which they are led to expect some profit.

It is a fact well known, that at no period has the Dublin College of Surgeons been in a less thriving state than at present; as a proof of this, I will merely mention the fact, that there have not been more than three or four applications for examinations since the commencement of the year; this, Sir, together with the want of that support which the senior members of the profession should grant to the juniors, arises in a great measure from a deficiency of that *esprit du corps*, which in no profession is more remarkable than in the medical.

In conclusion, Sir, I might hope, that in these days of reform, the medical profession will also undergo a renovation, and that it will first commence, where it is most wanting, in the minds of its members, and that they will lay aside all underhand kind of work, and that desire of raising themselves to the injury and injustice of their brethren.

By giving the above a place in the pages of The Lancet, you will oblige,

Your very humble Servant,

A Member of the Profession.

Dublin, May 21, 1832.

PUNCTURED WOUND BY A BAYONET.

To the Editor of The Lancet.

Sir,—I shall feel obliged by your giving an early insertion to the following case of punctured wound, terminating in death in ten hours, in your valuable weekly journal. I am, Sir, your obedient servant,

James Mash, House-Surg. General Infirmary, Northampton.

William Marriott, ætat. 35, received a wound from a bayonet on the right temple on Saturday evening, March 17th ult., about half-past nine o'clock, and was brought to the infirmary two hours after the accident. On examination I found a punctured wound of a triangular shape on the right temple, extending through the temporal bone to the brain. He was quite insensible, and the pupil of the right eye considerably dilated, and insensible to the stimulus of light; the pupil of the left eye was more than naturally contracted, and also insensible. The pulse was weak and very slow; extremities cold. Wine, &c., were immediately given, and the pulse became stronger. He lingered in the same state until half-past eight o'clock the following morning, and expired, never having spoken from the commencement.

Post-mortem examination of the body, three hours after death.

On examining the external wound, I found the temporal artery divided, and the squamous portion of the temporal bone perforated, evidently by an instrument of a triangular figure. On opening the head, and opposite the wound, the dura mater and middle lobe of the cerebrum were lacerated, extending into the right lateral ventricle of the brain. On removing the dura mater, considerable venous congestion was observed between the tunica arachnoidea and pia mater, and on opening the right ventricle, considerable extravasation of venous blood was found in that cavity. The other parts of the brain presented no unnatural appearances.

April, 1832.

P.S. I was informed by the surgeon who was first called to the case, that he lost a good deal of blood from the temporal artery, but he had no hemorrhage after he came into the Infirmary, except a little oozing before death from the wound.

APPLICATION OF GASTRIC JUICE TO THE PURPOSES OF MEDICINE.

To the Editor of The Lancet.

Sir,—The observations I am about submitting to your consideration, first originated by my perusing in your Journal a short time since some very trite remarks on the gastric juice, and the application of the gastric juice of animals in the cure of certain diseases of the stomach, such diseases being supposed to owe their origin to a scarcity of the necessary juice for the usual digestive process. I well remember your correspondent cited some very satisfactory results having arisen from the employment of the animal juice.

After I had attentively considered the subject, the thought struck me, that as gastric juice was a liquid, which it was difficult if not impossible to procure, some other preparation may in its stead be instituted; but as it was an animal production, I was on the point of giving up the subject, not being possessed of chemical apparatus sufficient to moot the matter to the base, when happening to dine that day with some professional friends, the subject of the formation of cheese was brought on the carpet,

as well as on the table; one idea led to another, and after returning to my study, I briefly recapitulated the substance of our conversation. One observation of my friend at the time particularly struck me; he stated, that "a liquid called rennet (which was formed from what are commonly called Irish vells, such articles being nothing more or less than the stomachs of calves salted) was dropt into milk, which immediately from its acidity produced a decomposition of its parts; the thicker was precipitated, commonly called curds, and a thin serous fluid formed on its surface denominated whey; he further stated, that it was a generally-received thing among men of agricultural research, that the gastric juice of the vell which produced the decomposition." Now, Sir, my hypothesis is of a very simple nature; we all know albumen is decomposed by acids, therefore what can produce the decomposition in milk if there be not an acid present? And what can that acid be, but the gastric juice contained within rennet? We all know that gastric juice is acetous in a high degree, which proves at once that it can be no other than the real gastric juice of the calf which constitutes the active effect to be found in rennet. I have not, Sir, since forming the above conclusion had a case under care in which I could employ the rennet, but I do not hesitate a moment in giving my opinion, that in those diseases of the stomach in which there is a deficiency of the gastric juice (which frequently occurs in dyspepsia), the employment of rennet would be of material advantage; at least I speak from supposition. Amongst the ranks of the profession, if any gentleman be found who will give his especial attention to this subject, he will merit the thanks of the lovers of science I am well assured. And now, Sir, I must apologise for having so long trespassed on your favour; and having introduced this subject to the attention of the profession, I beg leave to bequeath it to abler and more efficient hands; and believe me, Sir, to remain your obliged humble servant,

G. J. P.

Hants, May 16th, 1832.

ROYAL INSTITUTION.

MR. FARADAY ON THE ELECTRO-TONIC STATE.

Whilst the wire is subject to either volta-electric or magneto-electric induction, it appears to be in a peculiar state, for it resists the formation of an electrical current in it, whereas if it were in its common condition, such a current would be produced; and when left uninfluenced, it has the power of originating a current, a power which the wire does not possess under common circumstances. This electrical condition has not hitherto been recognised, but it probably exerts a very important influence in many, if not most, of the phenomena produced by currents of electricity.

This peculiar condition shows no known electrical effects whilst it continues; nor have I yet been able to discover any peculiar powers exerted or properties possessed by matter whilst retained in this state.

It shows no reaction by attractive or repulsive powers. The various experiments which have been made, with powerful magnets upon such metals as copper, silver, &c. prove this point; for these substances, if electrical conductors, must have acquired this state, and yet no evidence of attractive or repulsive power has been observed. I have placed copper and silver discs, very delicately suspended on torsion balances in vacuo, near to the poles of very powerful magnets, yet have not been able to observe the least attractive or repulsive force.

I have also arranged a fine slip of gold leaf very near to a bar of copper, the two being in metallic contact, by mercury, at their extremities. These have been placed in vacuo, so that metal rods connected with the extremities of the arrangement should pass through the sides of the vessel into the air. I have then moved powerful magnetic poles by this arrangement, in various directions, the metallic circuit on the outside being sometimes completed by wires and sometimes broken. But I never could obtain any sensible motion of the gold leaf, either directed to the magnet or towards the collateral bar of copper, which, as far as induction was concerned, must have been in a similar state to itself.

In some cases it has been supposed, that under such circumstances attractive and repulsive forces have been exhibited. But the phenomena just described, in conjunction with the confidence we may reasonably repose in M. Ampere's theory of magnetism, tend to throw doubt on such cases, and it is far more probable, that the extremely feeble permanent effects observed, have been due to traces of iron, or some other unrecognised cause not magnetic.

This peculiar condition exerts no retarding or accelerating power upon electrical currents passing through metals thus circumstanced. Neither could such power on the inducing current itself be detected, for when masses of metal, wires, helices, &c. were arranged in all possible ways by the side of a wire or helix, carrying a current measured by the galvanometer, not the slightest permanent change in the indication of the instrument could be perceived. Metal

in the supposed peculiar state, therefore, conducts electricity in all directions with its ordinary facility, or in other words, its conducting power is not sensibly altered by it.

All metals take on the peculiar state, as is proved by experiments I have shown in a former lecture. With regard to iron, the experiments prove the thorough independence of these phenomena of induction in regard to the ordinary magnetical appearances of that metal.

This state is altogether the effect of the induction exerted, and ceases as soon as the inductive force is removed. It is the same state, whether produced by the collateral passage of voltaic currents, or the formation of a magnet, or the mere approximation of a magnet; and is a strong proof of the identity of the agents concerned in these several operations.

The state appears to be instantly assumed, requiring hardly a sensible portion of time for that purpose. The difference of time between volta-electric and magneto-electric induction, rendered evident by the galvanometer, may probably be thus explained. When a voltaic current is sent through one of two parallel wires, as those of the hollow helix, a current is produced in the other wire, as brief in its continuance as the time required for a single action of this kind, and which by experiment is found to be inappreciably small. The action will seem still more instantaneous, because as there is an accumulation of power in the poles of the battery before contact, the first rush of electricity in the wire of communication is greater than that sustained after the contact is completed; the wire of induction becomes at the moment electro-tonic in an equal degree, which the moment after sinks to the state in which the continuous current can sustain it, and, in sinking, causes an opposite induced current to that at first produced. The consequence is, that the first wave of electricity more resembles that from the discharge of an electric jar than it otherwise would do.

But when the iron cylinder is put into the same helix, previous to the connexion being made with the battery, then the current from the latter may be considered as active in inducing innumerable currents of a similar kind to itself in the iron, rendering it a magnet. This is known by experiment to occupy time, for a magnet so formed, even of soft iron, does not rise even to its fullest intensity in an instant, and it may be because the currents within the iron are successive in their formation or arrangement. But as the magnet can induce, as well as the battery current, the combined action of the two continues to evolve induced electricity until their joint effect is a maximum, and thus the existence of the deflecting force is prolonged sufficiently to overcome the inertia of the galvanometer needle.

In all these cases where the helices or wires are advanced towards or taken from the magnet, the direct or inverted current of induced electricity continues for the time occupied in the advance or recession; for the electro-tonic state is rising to a higher or falling to a lower degree during that time, and the change is accompanied by its corresponding evolution of electricity; but these form no objections to the opinion that the electro-tonic state is instantly assumed.

This peculiar state appears to be a state of tension, and may be considered as equivalent to a current of electricity. The current evolved however, first or last, is not to be considered a measure of the degree of tension to which the electro-tonic state has risen; for as the metal retains its conducting powers unimpaired, and as the electricity evolved is but for a moment, the electricity which may be led away by long wire conductors (offering obstruction in their substance proportionate to their small lateral and extensive linear dimensions) can be but a very small portion of that really evolved within the mass at the moment it assumes this condition.

The tension of this state may be comparatively very great. But whether great or small, it is hardly conceivable that it should exist without exerting a reaction upon the original inducing current, and producing equilibrium of some kind. I have not been able to ascertain that this gives rise to a retardation of the original current, neither have I in any other way as yet been able to distinguish effects attributable to such a reaction.

All the results favour the notion, that the electro tonic state relates to the particles, not to the mass, of the wire or substance under induction, being in that respect different to the induction exerted by electricity of tension. The current of electricity which induces the electro-tonic state in a neighbouring wire, probably induces that state also in its own wire; for when by a current in one wire a collateral wire is made electrotonic, the latter state is not rendered any way incompatible, or interfering with, a current of electricity passing through it. If, therefore, the current were sent through the second wire instead of the first, it does not seem probable that its inducing action upon the second would be less, but on the contrary more, because the distance between the agent and the matter acted upon would be greatly lessened.

No difficulty arises in considering the wire rendered electro-tonic by its own current, more than by any external current, espe-

cially when the apparent non-interference of that state with currents is considered. The simultaneous existence of the conducting and electro-tonic states, finds, an analogy in the manner in which electrical currents can be passed through magnets where it is found, that both the currents passed, and those of the magnets, preserve all their properties distinct from each other, and exert their mutual actions.

The reason given with regard, to metals, extends also to fluids and all other conductors, and leads to the conclusion that when electric currents are passed through them, they also assume the electro-tonic state. Should that prove to be the case, its influence in voltaic decomposition, and the transference of the elements to the poles, can hardly be doubted. In the electro-tonic state the homogeneous particles of matter appear to have assumed a regular but forced electrical arrangement in the direction of the current, which, if the matter be undecomposable, produces, when relieved, a return current; but in decomposable matter, this forced state may be sufficient to make an elementary particle leave its companion, and associate with the neighbouring similar particle in relation to which it is in a more natural condition, the forced electrical arrangement being itself discharged, or relieved, at the same time, as effectually as if it had been freed from induction. But as the original voltaic current is continued, the electro-tonic state may be instantly renewed, producing the forced arrangement of the compound particles, to be as instantly discharged by a transference of the elementary particles of the opposite kind in the opposite directions, but parallel to the currents. Marianini has discovered and described a peculiar affection of the surfaces of metallic discs when being in contact with humid conductors; a current of electricity is passed through them; they are then capable of producing a reverse current of electricity, and Marianini has well applied the effect in explanation of the phenomena of Ritter's piles. M. A. de la Rive has described a peculiar property acquired by metallic conductors, when, being immersed in liquid as poles, they have completed for some time the voltaic circuit, in consequence of which, when separated from the battery and plunged in the same fluid, they themselves produce an electric current. M. A. Van Beek has detailed cases in which the electrical relation of one metal in contact with another has been preserved after separation, and accompanied by its corresponding chemical effects. These states and results appear to differ from the electro-tonic state and its phenomena; but the true relation of the former to the latter can only be decided when our knowledge of all their phenomena has been enlarged.

The momentary existence of the phenomena of induction now described, is sufficient to furnish abundant reasons for the uncertainty or failure of the experiments hitherto made to obtain electricity from magnets, or to effect chemical decomposition or arrangement by these means. It also appears capable of explaining fully the remarkable phenomena observed by M. Arago between metals and magnets when either are moving, as well as most of the results obtained by Sir John Herschel, Messrs. Babbage, Harris, and others, in repeating his experiments.

THE LANCET.

London, Saturday, June 9th, 1832.

In turning attention from the Asiatic cholera to the tyranny of Rhubarb Hall, we merely direct our view from one plague to another—the first, the dread of the world; the second, the curse of English medical students. An active temperament proves a bane instead of a blessing, if it be not directed by sound judgment; thus little-minded men, who have scarcely aught to distinguish them other than expertness of movement, inflict tortures upon all persons who may happen to fall within the sphere of their influence; and the mischief worked by them is in exact proportion to the degree of their elevation in the scale of society. Hitherto the framers of the laws of this country have exercised little or no discretion in the selection of individuals upon whom has been made to devolve the execution of important trusts. Imperfect in the first choice, the original defectiveness has been ever rendered still more defective by allowing deformity to make choice of deformity, until a monster has been called forth too hideous for human endurance. The parent evil has now, however, received a shock which must be speedily communicated to every member of her corrupt offspring. The "Colleges" and "Compa-

nies" established under the reign of misrule, have received in their "corner-stones" a blow which has shaken the rotten fabrics to their centres. Where are now the revilers of the LONDON COLLEGE OF MEDICINE? Where are the dim-sighted mortals who predicted the failure of that institution in the failure of the measure for *parliamentary* regeneration? Under any circumstances, in a nation manifesting so much intelligence as the people of England, nothing could prevent the final and permanent success of such an establishment as the London College of Medicine—owing its origin, as it does, to the purest motives, and based, as it is, upon the noble principle of science, and the just one of public utility. But now that we are to enjoy, comparatively speaking, an *independent* legislature, the *legal* establishment of this institution—by act of parliament or by charter—is as inevitable as it must be speedy. The cry of "no innovation," set up by knaves, fools, and bigots, has been exchanged for—"March on in the road of improvement." The senators and philosophers of the present period, who may be directing their researches into the dark channels of medical history, and who institute a comparison between the atrocities which have been perpetrated by the charter-cemented medical colleges and companies, and the great and glorious advantages which must result from such a really liberal institution as the London College of Medicine, resemble a man making the irrational attempt to harmonise the justice and independence of trial by jury, with the cruel barbarities enacted by the Star-Chamber. We are induced to advert to the savage tyranny manifested by the old medical corporations, because it has of late increased not only in the intensity of its malignity, but in the frequency of its manifestations.

The members of our profession do not now require to be told that there is an *Apothecaries' Act*, which was passed in 1815, nor do they require to be informed that, under the provisions of that act, the Judges have decided that neither Surgeons nor Physicians can prepare or administer their own medicines, in cases which are considered "*medical*;" but it is *not* generally known, that under the sanction of that iniquitous measure, medical students are plundered at the various "recognised" establishments, and that they are insulted, harassed, and degraded by the very individuals whom the legislature intended should be at once their guides and protectors. Never have we hesitated to condemn, in the strongest possible terms, all *private* examinations into alleged professional ability. Never have we omitted to hold up such inquisitions, as repressive of professional ardour, as repulsive to professional honour, as injurious to the public welfare. If, however, our voice has been heard, it has been heard in vain, as regards not only the actual state of the law, but as relates to the system still in vogue at the two chartered "Colleges," and the Act-of-Parliament Medical "Company" still in existence in this metropolis. But in a demand upon the energies and discernment of the profession for the creation of a new institution, claiming support by the just and scientific character of its regulations, we have *not* spoken in vain—our breath has not been "wasted upon the desert air." Infatuated by the bedizening influence of office, or bewildered by an overwhelming feeling of self-conceit, the very men who contemplate the existence of the London College of Medicine with apprehension and dismay, labour zealously in the course of its success; but, it must be admitted, with no good intentions. Boasting of the power which the law has conferred upon them, they exercise that power in a manner the most sure for effecting their own overthrow. Detesting an institution which opens wide its portals to talent of

every nation and every clime, they labour to furnish materials for a comparison which cannot fail to expose them to their professional brethren in all the hideousness of unshielded guilt. Not a week passes but communications are forwarded to us, in which the most bitter complaints are urged against the examiners at Apothecaries' Hall. If any reliance may be placed on the statements of our correspondents, this insignificant knot of contemptible personages seem to delight in distracting minds which they are only empowered by law to patiently and impartially examine. Screened from public view, and engaged in their inquiries with closed doors, under the protection of a beadle's mace, they indulge in all the capricious whims peculiar to imbecility, and breathe forth the petulant mandates of pedagogues, when their language and demeanour should indicate a love of science, and the calm spirit of honourable inquiry. Candidates for the license are rejected under the most flimsy pretexts; judicious replies throughout three-fourths of a probationary hour are no security against disgrace for the commission of two or three technical errors in the last few minutes of examination. It is even said, that some of the scrutators pride themselves upon the ingenuity, the delusive tendency of their "*catch*" questions. Thus a candidate is frequently rejected—not for misrepresenting that which is really in existence, but for giving some erroneous definition of a fabrication which holds its seat exclusively in the almost brainless head of his inquirer. Placed within the field of medical science, an idiot might, by directing his attention to a thousand points, ask for information from the wisest man in the profession without obtaining it. An examination to be useful, should be practical; to be efficient, it should embrace what is demonstrable; to be just, it should be impartial. Had the pupils the opportunity of catechizing the Court, how many questions would the *examiners* answer correctly, even if the subjects of them embraced matters of a purely elementary character? But, in turning back candidates upon the meanest quibbles, upon the veriest subterfuges of heartless taskmasters, the Court bestows no consideration on the sacrifices of time and money—no feeling of compassion for the unhappy victim of disappointment and disgrace. One thing, however, they doubtless *do* consider—that a temporary refusal to receive the fee for the license does not amount to a permanent loss of that fee, for the Act of Parliament is imperative, and the judges have shown that a practitioner cannot act as an apothecary, if he have not the license of this Company, without subjecting himself to a penalty of 20*l.* for every offence. Hence, the gratification of a narrow-minded or malignant feeling is not attended with a tax upon the pocket. The worthy Court may be prodigal in "rejections" without any attendant risk of pecuniary loss. A fee is recoverable, if the student's peace of mind be not; sacrifice of honour to the candidate brings not the inconvenience of empty coffers. How different would be the proceedings of the worshipful Court if the examinations were conducted *in public*, in conformity with the regulations of the London College of Medicine! Standing in his own right before competent querists, and an impartial jury of medical men, what student possessing the requisites for the successful practice of his profession would hesitate to place himself in the presence of so honourable a tribunal?

Although the powers of the miserable Company are rapidly approaching their end, we have felt ourselves called upon to advert to the cruel character of some of the recent rejections. It is possible that this public notice may check the current of abuse. That it will remove it we cannot venture to hope. If, however, the examiners possess any of those qualities which should characterise the heads and hearts of

the members of a liberal and learned profession, we would appeal to them, and inquire whether the display of garrulous inquisitiveness—whether the exhibition of an overbearing, intolerant spirit of seeming superiority—whether wily, deep-laid, and mystically-woven questions to entrap, can serve one good purpose, either as concerns the examiners or the examined; and whether, on the other hand, conduct so disgraceful on the part of the Court does not often displace feelings of respect by those of disgust, and convert the fondest anticipations of youthful minds into the rancorous feelings of disappointment and revenge.

On the Nature and Cure of Glandular Diseases, especially those denominated Cancer, with the mode of Treatment, and on the too frequent use of Mercury, &c. By Sir Charles Aldis, Surgeon and Accoucheur, M.R.C.S. Lond. Highley. 1832; 8vo. pp. 116.

If we analyse the motives which generally induce authors to commit their lucubrations to print, we shall find that a few only are influenced by a pure desire to benefit mankind; a large number are stimulated by the less worthy, though often laudable anxiety, of acquiring notoriety, and posthumous honours. A very large number aim not at utility, and are incapable of estimating even the value of reputation. These are possessed by the spirit so well denominated by Horace as the "cacoethes scribendi." Under a third class are to be arranged advertisers in general, who adopt the ingenious expedient of authorship, and under covert of advancing some public object, or a particular science, by professedly publishing a treatise on it, let the public know what they have to sell, or that they have changed their place of abode, and migrated from this part of the town to that. Amongst the class of works produced by this latter kind, must the treatise of the present knight-accoucheur be ranked.

We need not remind our readers how important a question is that of cancer, and what a responsibility that man takes upon himself who declares in positive terms that he can cure this obstinate and formidable disease without the use of the knife. Nothing but the clearest and most unimpeachable testimony is admissible in support of such an assertion, supported by equally unimpeachable cases. But for such, notwithstanding the declarations of the author, the reader may in vain search the present volume. The first page is garnished with a drawing more worthy of the "Masterpiece" than a medical volume: the preface consists of a treatise on cholera; the body of the work is filled with cases, the majority of which, at the least, were *not* cancerous; we have, then, an episode upon small-pox and Dr. Curry; and, at last, lest the bantling might be classed with the Cerberus breed, we have an appendix (to this work on *cancer*!) in the shape of a case of *fractured skull*, published nine-and-twenty years ago, with one of pericarditis equally stale and inappropriate!

The object of the treatise is palpable enough to any one who may inspect it.

Practical Examinations on the immediate Treatment of the principal Emergencies that occur in Surgery and Midwifery, systematically arranged. Intended to serve as an Exercise for the Student, and a brief Work of Reference for the General Practitioner. Part I. By W. S. Oke, M.D. London: Longman and Co. 1831. 8vo. pp. 250.

We feel particular pleasure in being able to recommend this volume to medical students, for it is a very good work, and one to which they may refer with advantage. It contains much valuable information on the leading doctrines of surgery and midwifery, ably and tersely conveyed. The miserable productions usually consulted by beginners, are rather calculated to impede than to promote medical education. Nearly the whole of them, in fact, are occupied by matters of minor importance, or whenever they do treat of essentials, are filled in so wretched a manner,—their contents are so ill arranged, or their matter is so unintelligibly written, that a general destruction of the mass would be in no respect a loss to

the sciences of which they profess to treat, but would prevent students from wasting much valuable time and labour upon points of no practical value. From such objections as these, the work of Dr. Oke is eminently free; the questions follow one another in well-arranged series, and the answers given at sufficient length to convey precise information on every subject—are generally taken from the works of the best writers on each topic.

Both the plan and the execution of the work entitle it to our praise, which should have been sooner bestowed on it, had we known the second part would have been delayed for so long an interval.

THE PRESENT DEGRADING CLASSIFICATION OF

NAVAL SURGEONS.

To the Editor of THE LANCET.

MR. EDITOR,—You have lent a helping hand to naval surgeons, for which I hope they are not ungrateful. I am certain, anyhow, that you deserve well of them; for when as gentlemen and members of a liberal profession they were treated with great indignity, you, and some others, alive to the insult so wantonly, if not intentionally, heaped upon them, and, through them, upon the profession, boldly and successfully advocated their cause. In the hope that you will still do so upon all occasions when they have right on their side, I beg to call your attention, and through the medium of your valuable publication that of the corps, to the circumstance of their still remaining classified with warrant officers, viz. boatswains, gunners, and carpenters! It was this *untoward* arrangement which was pleaded in justification of "the exclusion order," which so much galled nearly one thousand meritorious public servants. And as this classification still in various ways subjects naval surgeons to treatment to which the medical men of no other department of the public service are liable, and thereby tends to degrade them in the service to which they belong, and also in that of the sister service, they will have *no more* than justice when they are ranked with commissioned officers, and treated accordingly. There are many other invidious distinctions between the medical men of the two services very grievous and mortifying, but to them I will not further advert at present. But to the distinction of rank, and consequent consideration in the eyes of the public, I do earnestly solicit your attention and that of the aggrieved parties. It is but a small matter, and one unattended by expense or trouble, that I ask for men who are every way worthy of a better consideration. It is only this—that they be removed from the class of *warrant* to that of *commissioned* officers. There are naval surgeons in high station in London, who, if they care not for this themselves, will, I hope, use their influence to have the distinction, so amazingly hurtful to the feelings of the body to which they still belong, removed. I call also on the corps, individually and collectively, to use their endeavours for the same end, viz. the respectability, and consequent usefulness, of the naval surgeons. Without this, the fine laced uniform now to be worn is only a piece of mockery.

I am, Mr. Editor,

ONE OF THE AGGRIEVED.

London, June 2, 1832.

ST. GEORGE'S HOSPITAL.

CLINICAL REMARKS

BY

MR. BRODIE.

Delivered May 14th, 1832.

NEW TREATMENT OF RANULA.

THERE is a case of this nature now in the hospital, which Mr. Brodie is treating by passing a *silver ring* through the cyst. Remarking on it, he said, "This is a new method which I am trying in the treatment of this disease. I have employed a silken thread seton, but the rough surface of the silk irritates too much, and I am now trying what this smooth silver ring will do. I saw a few days ago an infant three days old, who had congenital ranula, which I punctured with a sharp needle."

18th. The silver ring has come out, and the fluid is again collecting.

INFLAMED BURSÆ.

"There are two species of this; you may have the bursa between the ligament of the patella and the skin, inflamed. This is very common, and also very apparent. You may also have the bursa inflamed, which is situated under the ligament, between it and the bone. This is as common as the other, but is more painful, from being in closer contact with the bone beneath."

WOUNDS ON DISSECTION.

"In some of these cases you will find the wound heal, and there will be no swelling of the arm whatever, either in the course of the veins or absorbents; but you will in a short time find an abscess presenting itself under the great pectoral muscle of the same side, which will be attended with acute and intolerable pain. I used formerly to think that the glands in the axilla were affected in these cases, but I once had an opportunity (the only one I ever had, for nine times out of ten these cases recover) of examining a case of this kind after death, and I then found that the axillary glands were scarcely affected at all, but that the cause of this dreadful pain arose from the abscess being situated amongst the axillary plexus of nerves."

TREATMENT OF DISEASED BONE.

"You must not suppose that when we treat diseased bones by putting them up in pasteboard splints, it will cure the disease. They merely keep the limb quiet and at rest, and thus prevent the disease extending to any of the neighbouring articulating surfaces. Even with this care the disease is frequently a very long time before it leaves the patient, depending entirely upon what species of disease it is."

ACID SALIVA.

The case is that of a patient who had had a venereal attack a twelvemonth previously, and who now has slight erythematous pustules over his body. On visiting him today he complained of having pains in all his joints; he has also an ulcerating sore on the posterior and upper part of the right thigh. Mr. Brodie tested his saliva, and found it acid. "It ought to have been alkaline," Mr. Brodie observed. "It is a very singular fact, but Dr. Prout informs me that he has met with a great many persons who have acid saliva, and since he has named it to me I have remarked the same circumstance myself in many of my own private patients. Now this is a very extraordinary fact, and should only be met with in cases where there is very great disorder in the system." On our visiting this patient a few days afterwards, we found this acid state of the saliva to be no longer present.

PULSATING TUMOUR IN THE NECK.

In a case where a patient has a pulsating tumour situated on the right side of the neck, Mr. Brodie has ordered him to be repeatedly bled in small quantities, and ever since the man has been in the hospital, the tumour (in Mr. Brodie's opinion) has gradually decreased in size. Mr. Brodie considers the case to be one of inflammation of the cellular texture around the artery (thus causing a thickening and swelling which pulsates with the artery), rather than an aneurismal tumour. "Such cases as these, Gentlemen," remarked Mr. Brodie, "are not of uncommon occurrence. I had a case somewhat similar in this hospital, in which there was a pulsating tumour in the groin, and every one, upon superficially observing it, pronounced it to be an aneurism; but upon inquiring more particularly into the case, I discovered that the patient had some affection of the hip-joint, which had extended to the inguinal glands and cellular membrane around the trunk of the artery, and consequently formed a pulsating swelling. There was a case also admitted under the care of the late Mr. Ewbank; the patient had a longitudinal pulsating swelling in the thigh, which every one who saw it supposed arose from dilatation or ossification of the coats of the artery. An operation was performed upon this patient, and when the artery was discovered, to our surprise it was of its natural diameter, but the parts around were very much thickened."

With regard to the case which called forth these remarks, Dr. Hamson supposed it to be one of aneurism, from the noise that was communicated to the ear when it was examined by the stethoscope; but Mr. Brodie in our opinion pointed out a surer method of diagnosis,—the want of a well-marked boundary line around the tumour. The man was ordered to be kept perfectly quiet; his right arm to be supported in a sling.

18th. Since we last saw him he has had eighteen leeches applied over the tumour. Mr. Brodie believes to-day that by pressure he can empty it like an aneurismal tumour; but if it be aneurismal, it is so situated as to be entirely beyond the reach of the knife or the ligature. He was ordered,

Magnesiæ sulphat. ℥ij;
Infus. rosæ ℥ij; *omne primo mane sumend.*

25. Mr. Brodie believes the tumour, if an

aneurism, to be one of the arteria innominata. Dr. Hamson is still of opinion that the tumour is aneurismal, from the *clacking sound* which is perceptible to the ear on examining the tumour with the stethoscope. The *bruit de soufflet* is also heard in the tumour after the man has been walking about the ward.

ENLARGEMENT OF THE THYROID GLAND.

This was a case which had been treated with calomel and opium. Mr. Brodie remarked, that calomel and opium only did good by removing that from the body on which the inflammation or enlargement depended; "and indeed I suppose," added Mr. Brodie, "that most of our medicines act in this way; but in an organic inflammation of this kind, I doubt whether calomel and opium will be of any service at all. I once tied the thyroid artery in a case similar to this, and I thought too with some degree of benefit; but I shall not give a further opinion upon this case until I have consulted the written authorities upon the subject." Since this man has been in the hospital, 56 leeches have been applied to the tumour, and ʒxl of blood have been taken from him in small quantities at a time. The blood has been buffed and cupped. The man spits up a thick greenish frothy mucus; and percussion detects hepatisation of the apex of the left lung.

May 18th, 1832.

DISEASE OF THE BONES OF THE ANKLE.

In a case of enlargement and swelling around the ankle-joint, plainly indicating disease of the bones, Mr. Brodie remarked, that from the circumstance of the man not having had much pain at the commencement of the disease, which is now about five years since, he was led to believe that the disease (which he believed to be scrofulous) first commenced in the bones, and had now extended to the cartilages. "The appearance of the joint also," continued Mr. Brodie, "resembles very much that of a scrofulous one. I have opened those parts of the tumour which seemed to point most, and nothing is to be done except keeping the man quiet. Indeed I think it will be best to amputate the limb (for there is unfortunately no other resource left) whilst the man's health is sufficiently good to bear the shock of the operation. In cases like these, where they occur in young persons, you may sometimes save the limb—but in adults I think you only increase the mischief by delaying the amputation. What is the man's opinion of his leg?" asked Mr. Brodie of Mr. Fernandez. "I really do not know," answered Mr. Fernandez. "I have not spoken to him about it." "You had better sound him on the subject then," said Mr. Brodie, "and tell him I have a very bad opinion of it."

25. There has been some slight hemorrhage from the wounds made in the tumour, which has been stopped by pressure. In other respects the man is not altered for the worse.

FISTULA IN ANO.

"What chance is there of a fistula in ano healing spontaneously?" asked Mr. Brodie of Mr. Babington. Mr. Babington said, that it would depend entirely upon the length of time that the fistula had existed, and upon how deeply the sinus had penetrated into the substance of the sphincter muscle. Mr. Brodie said, that in the case to which he referred, the probe went nearly the whole length of the index finger into the sinus, and that he believed the disease had existed for upwards of six months at least. "Then in that case," said Mr. Babington, "I should say, that the chance of its healing spontaneously is none." "I quite agree with you in opinion," said Mr. Brodie.

DIVISION OF THE SPHINCTER ANI.

"In fistula in ano you will often find, that the sinus in the sphincter ani muscle will admit of a silver probe, whilst it will not admit of the probe-pointed end of a bistoury.* In these cases, I make use of a pair of knife-edged, probe-pointed scissors (Mr. Brodie here exhibited a pair), which answer the purpose exceedingly well, and do not give the patient half the pain occasioned by the division with the bistoury."

STRICTURE.

"In this case you see, Gentlemen, that the temporary contraction of the stricture is completely overcome; but dilating a stricture, only, is not sufficient to cure it. The disposition to contract still continues; and the dilatation of the stricture, to be of any service to the patient, must be kept up permanently, for if a relapse of the stricture occur, it is in general much more difficult to overcome than the first attack. I shall not let this man leave the hospital till he can easily pass a sound for himself."

DISEASED KNEE-JOINT.

In a case of ulceration of the cartilage of the knee-joint, which has been in the hos-

* We are happy to state, that owing to the remarks which we made on this subject a few weeks since, a case of probe-pointed bistouries is now to be found among the other surgical instruments of the hospital.

pital for some time, and has much improved under the use of repeated blisters, bandages, and pasteboard splints, Mr. Fernandez remarked, that as the man had been in the hospital for so long a time, and was getting so much better, he thought he might go out. "By no means," said Mr. Brodie. "In cases of abscesses in the loins, or diseases of the vertebræ, the country air is of great benefit; but in a case of this kind, by sending the man out of the hospital you bring back again all the original mischief in an aggravated form, and the man would return to the hospital worse than ever."

INFLAMMATION OF THE TESTICLE.—In the case of chronic inflammation of the testicle, which was formerly reported, the calomel was discontinued on the 18th, and the patient was ordered to continue the fomentations and poultices to the parts, and to take

℞ *Decoct. sarsæ* oj;
Extract. sarsæ 3j;
Liq. potassæ 3iss *quotidie.*

WESTMINSTER HOSPITAL.

VASCULAR SARCOMA OF THE PENIS. — AMPUTATION OF THE PENIS. — FAILURE OF HALMA-GRAND'S SECRET STYPTIC.

CHARLES HUNT, 59 years old, a gardener residing at Battersea, was admitted under Mr. White on the 18th of January last, with a vascular sarcoma of the penis. He was a man of middle stature, and apparently of good constitution, having what is commonly called a sanguineous temperament. He had enjoyed good health all his life, having never been annoyed with more than occasional sore throat and coryza. He had been married many years, had led a regular life, and had never had any venereal malady. About two years ago, he first perceived a little hard tumour about the size of a pea on the right side of his prepuce. This continued to enlarge, varying considerably in its rate of growth, and growing fastest in the summer season, or when he felt out of health. It progressively involved the whole prepuce and adjacent integuments, and extended into the substance of the penis. On admission, the anterior two-thirds of the penis consisted of this sarcomatous mass, showing an appearance of large flabby granulations, covered with a rather offensive pus. The man's health was unaffected, and his appetite good. He was subjected for a month to an ineffective treatment by external applications, when his health showing signs of deterioration, it was determined to amputate the penis. On Saturday, 18th February, Mr. White took off this organ as high up as he could. Both the profunda and dorsalis arteries bled freely. Mr. White did not apply a ligature to either, but permitted Mons. Halma-Grand to apply his styptic, which was done in this manner. Dossils of lint were dipped in the styptic, and successively applied in the manner of compresses on the incised surface of the penis. The wound was entirely filled with compresses before the hemorrhage ceased. The patient complained of being "smarted and burnt" by the application. Over all, pressure by compress and bandage was made. No hemorrhage took place for about *twelve* hours, but *then* it occurred most profusely, the patient losing at least thirty ounces of blood. One of the resident surgeons immediately removed all the styptic paraphernalia, and washed the wound with warm water, the bleeding soon ceased, cold cloths were applied, and the patient kept cool and quiet. No farther hemorrhage took place, neither was the styptic again applied, and the wound has gradually gone on healing. The mouth of the urethra has however with difficulty been kept open, a great contraction or puckering of the surrounding tegument having taken place during the cicatrization; bougie No. 9 will now however pass without difficulty, and the urine flows in a good stream. His health this day (20th May) is perfectly good, and he is noted for discharge.

LONDON HOSPITAL.

BURN.

ABOUT nine o'clock on the evening of the 20th, a little child, one year and three quarters old, was brought to this hospital with the back part of the head, neck, and arms, very severely burned, from the clothes having caught fire. Wine and laudanum were assiduously administered, and linseed oil and turpentine were applied to the parts, but reaction was not restored. The little sufferer lingered till about three o'clock the following afternoon, when it died. The nurse says that the parents of this child lost another in the same ward about five months since by the same means. Let us hope this is the last of the offspring whose safety appears to be so grossly neglected.

AMPUTATION OF THE TOE.

On Friday the 18th instant, Mr. Adams amputated the great-toe of the right foot of W. W., ætat. 17, of florid complexion, for a fungoid tumour which had formed there.

The tumour is of about the size of a small egg, of a blueish appearance, and cartilaginous hardness. There has been at times considerable hemorrhage from the tumour. He states, that about twelve months since, a "black blister" came on the toe, succeeded by this tumour, which has gradually increased in size. About two months since it was opened with a lancet, when violent hemorrhage took place. Has occasionally suffered severe lancinating pains in the tumour. The operation was very neatly performed. Two ligatures were applied, and the edges were brought together, and retained in approximation by a suture and strips of adhesive plaster, after which a roller was applied. The patient bore the operation without uttering a syllable expressive of pain. The toe was examined. The tumour, on being cut into, presented a uniform cartilaginous structure, with bands radiating from the centre. None of that soft substance so frequently found in scirrhous tumours could be squeezed out.

22. The foot was dressed to-day, looks very well, there is not much discharge; both the ligatures came away to-day. In every respect doing well.

INJURY TO THE THIGH.

Emma Durbridge, ætat. 4, was admitted on the afternoon of the 23d May, in consequence of injuries arising from the wheel of a waggon having passed over her thigh. The wheel had lacerated the integuments of the thigh, from about two inches above the knee-joint to within an inch of the spine of the ilium, completely separating the integuments from the muscles, so that the fingers could be passed from the inner to the outer side. The femur was not fractured, and the artery had escaped injury. There was very trifling hemorrhage, but the nervous system had sustained a very severe shock. The pulse was small and extremely quick; the skin cold; respiration hurried; the child restless, and throwing its arms about, but it did not appear to be suffering much pain. Fifteen drops of laudanum were given immediately on admission, and the edges of the wound were brought together by sutures, several of which were applied, and then strips of adhesive plaster, over which a roller was passed. Ordered a tablespoonful of wine every hour.

May 24. Had dozed continually during the night; is evidently sinking; extremely restless, throwing its arms about; respiration laborious and hurried; pulse extremely rapid; face livid; skin cold. At seven p. m. died.

STRANGULATED FEMORAL HERNIA.

A. L., a woman, ætat. 67, was brought into the hospital about eleven o'clock of the night of the 22d May, labouring under symptoms of strangulated hernia of the right side. While in the act of reaching to tie up a line, she had felt something give way, and a swelling formed in the groin, about the size of a duck's egg. Several attempts at reduction had been unsuccessful, and the patient was sent hither for operation. The warm-bath and taxis again failed, and as the symptoms were urgent, the intestine having been strangulated for nearly five days, it was determined to perform the operation without further delay.

On cutting into the hernial sac, Mr. Luke found very great caution necessary, as the sac was adhering intimately to the intestine, there not being a drop of fluid in the sac. The intestine was separated from its adhesions, the stricture was divided, and the edges of the wound were brought together, and retained by one suture, over which a compress was placed.

23. Passed a tolerable night; complains of pain in the abdomen; pulse 80, but not very full or hard; tongue furred; no stool since the operation.

℞ *Magnes. sulph.* ℥ij;
Aq. m. pip., ℥viij; *capiat agra cochl.*
ij *secunda quaque hora*;
Pil. opii, gr. j, *nocte sumend.*

24. Passed a tolerably comfortable night, but complains of griping pain, and tenderness in the abdomen; bowels opened twice; pulse 74, quiet; tongue still furred. Is allowed beef-tea and arrow-root. In the evening, her bowels becoming very much relaxed, she was ordered to discontinue the mixture, and take *tinct. opii* ℥xx; pulse quick and small; tongue very much furred; dry skin, cool; tenderness of the abdomen not so great as in the morning.

25. Slept very well during the night; bowels not relieved since eight o'clock last evening; pulse 100, small; skin hot; thirsty; tongue dry, and very much furred. To take the mixture as prescribed on the 23rd.

29. From last Saturday the patient has gone on very well; the bowels continue open, the tongue clean, and a daily amendment leads us to expect a favourable termination.

FRACTURED TIBIA AND FIBULA.

T. S. ætat. 23, was admitted on the night of the 7th April, with injury to the left leg, caused by the wheels of a hackney-coach during intoxication. Prior to his coming in, a medical man had pronounced the fibula to be fractured, but no fracture could

be detected in the hospital. There was very little swelling, but the patient complained of severe pain, for which leeches and lotions were applied; bowels confined; took a dose of house medicine. The case continued in this state until the 17th April, when an abscess formed on the back part of the leg, opposite the seat of fracture, and on lifting the leg for the purpose of examining this abscess, the fracture of both bones was instantly detected. A poultice was ordered to be applied, and the leg placed in splints. Another abscess formed immediately over the fracture, which was opened with a lancet on the 23rd, when about two ounces of pus were discharged. The leg continued without union, discharging daily a quantity of pus, until the evening of the 4th of May, when sudden and profuse hemorrhage came on, which was by the dresser controlled by pressure on the artery in the groin, until the tourniquet could be procured. Mr. Hamilton came down that night, and saw the patient, and determined to defer the operation of amputation until the next day, the patient being extremely exhausted. Pulse scarcely to be counted; and was ordered wine and brandy every ten minutes; upwards of half a pint of which was given him. The tourniquet was kept on the limb during the night. The patient lost about two pints of blood in about two minutes.

5th May. This morning the leg was removed about four inches below the knee. Very little blood was lost during the operation. Six ligatures were applied; the operation was performed neatly enough by Mr. Hamilton, one of the assistant-surgeons. The hemorrhage was found to have come from the posterior tibial artery, which was in a state of sloughing. Took tinct. opii M. XL; and was ordered four ounces of wine and a pint of porter daily.

6. Passed a very restless night; pulse 130, weak; countenance anxious; tongue furred; appetite bad; skin profusely covered with perspiration; complains of the limb starting very much, which wakes him out of his sleep.

8. The stump was dressed to-day, and looks very well; bowels open three times; skin cool and moist; pulse 110; small and weak; countenance anxious; feels very drowsy. To discontinue the porter.

10. The whole of the ligatures came away to-day; the stump looks very well; union by adhesion having taken place throughout the greater portion, the discharge is not considerable. Bowels open; appetite bad; tongue clean; passed a restless night; starts and talks very incoherently in his sleep.

12. Complained of having passed a bad night, although he took 40 drops of laudanum. Sickness of stomach; has no relish for food; profuse sweats, particularly at night; bowels have not been opened since the 10th. Pulse 112, weak; to take a large teaspoonful of castor oil, and continue the saline effervescing mixture, with ten drops of the tinct. opii.

13. Slept tolerably well last night; bowels opened twice by the castor oil; tongue rather furred; skin covered by a cold perspiration; countenance anxious; sickness of stomach very distressing if he omits the mixture; appetite bad.

15. Stump looks extremely well; the lower portion seems to have a disposition to suppurate; discharge healthy, but rather increased in quantity; his general health appears improving; bowels open; appetite better; takes a chop and porter daily.

18. Sleeps tolerably well; spirits and appetite improved; bowels regular; skin warm and moist; tongue clean; complains of considerable pain in the stump when dressed; discharge considerably increased in quantity.

21. Much the same as on the 18th.

24. The stump still continues extremely painful when dressed, particularly on the inner side; there is a discharge of a considerable quantity of pus daily; pulse 90, small; tongue slightly furred; bowels confined unless he takes the castor oil; appetite very indifferent; still complains of the sickness of the stomach if he omits the mixture, but which he takes much less frequently.

27. Complains of being very weak and low; appetite bad; bowels have not been relieved these three days; stump still continues extremely painful, and the discharge is considerable. To have one grain of calomel with ten grains of rhubarb; and a mixture of the compound infusion of gentian, with tincture of colomba.

(*To be continued.*)

INJURY THE HEAD.

On the 30th of April, G. C., a strong healthy man, ætat. 46, was admitted under the following circumstances. From the account given by his friends, it appeared he had been quarrelling with another man, by whom he had been forcibly thrown down; and while on the ground had received a violent kick on the upper part of the head, which had caused a lacerated wound of the scalp upwards of five inches in length. He was insensible for a few minutes, and afterwards vomited the contents of his stomach. At the period of his arrival here, he was tolerably sensible; his pupils were natural; pulse small but weak; his head was partially shaved; the edges of the wound brought together by strips of adhesive

plaster, and the patient ordered to be kept quiet in bed; to take a dose of house medicine.

May 1. Complains of constant pain in the head, extending across the forehead; pulse 78, full. To take *hydr. submur.* gr. ij *omnis 6tis horis*. In the afternoon considerable hemorrhage took place from the wound in the scalp, which was allowed to continue; he lost about 16 ounces of blood in this manner, which appears to have had a beneficial effect in diminishing the pain in the head.

2. Pulse 68, full; pupils natural; skin moist; bowels open; pain in the head diminished; is rather thirsty. To continue the calomel; to have the strapping removed and a poultice applied; and to be bled to 14 or 16 ounces.

3. Pain in the head much less severe; pulse 76, moderately full; bowels open; skin natural; tongue clean; complains of his mouth being rather sore; the blood drawn does not exhibit the buffy coat.

6. Pain in the head very trifling; complains of his mouth having been made very sore by the pills, which have been discontinued; pulse about 70 and quiet; skin cool; tongue clean; bowels open; the wound in the scalp looks clean, and discharges a small quantity of healthy pus.

10. Pulse 64, rather full; bowels have been much relaxed, but are not so much so now; tongue clean; skin natural; is free from pain in the head, excepting in the wound of the scalp, which is rather painful when dressed; is a good deal disturbed by his dreams, which are at times rather frightful; the soreness of the mouth is much less.

From this time he has continued without any bad symptoms.

REMOVAL OF THE TESTICLE.

On Wednesday, May 23rd, Mr. Luke removed the right testicle of F. H., ætat. 23, for a scrofulous disease of that organ. There was very little blood lost during the operation, and upwards of eighteen ligatures were applied.

The patient states the testicle first began to swell about nine months since, which he attributes to his having received a blow on that part. He had been attending this hospital for some time as an out-patient previous to his admission, during which time leeches and mercurial ointment were the remedies employed. About four months ago had hydrocele of that side, which was tapped, and about six ounces of fluid evacuated; the hydrocele was not injected. About a fortnight previous to his admission, the scrotum began to ulcerate, which soon increased in size, and the slough is now about the size of a crown piece, the surface covered with fungous granulations and unhealthy-looking pus, and the testicle much enlarged.

The testicle was not examined after the operation during the time we remained in the theatre. Cold lotion was ordered to be kept constantly applied to the part, and twenty drops of the tincture of opium to be taken at night.

24. Passed a very restless night, having been much disturbed by a noise made by a patient in a state of delirium. Bowels not relieved; skin warm; pulse 108; tongue clean; spirits good; took a dose of house medicine.

25. Slept well; bowels open; tongue rather furred; pulse 94, moderately full; skin hot; is rather thirsty; free from pain; keeps the cold lotion constantly applied to the scrotum.

26. Passed a restless night; bowels open; skin hot, but which he says is generally the case; tongue clean; pulse rather quick; spirits very good.

27. The wound was dressed to-day, and looks very well; there is very little suppuration; several of the ligatures came away to-day.

30. Several of the remaining ligatures came away in the dressing to-day; the wound looks well; the patient is in every respect doing well.

TREATMENT OF FRACTURES OF THE ARM AT

ST. BARTHOLOMEW'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—Your humble servant, a constant reader from the first Number of THE LANCET to the last, feels entitled to address you upon the two cases of amputation of the arm which are reported at page 223 of THE LANCET of Saturday the 19th inst.

Is it necessary to amputate arms, without giving nature the smallest chance of interfering, purposely to enable hospital surgeons to keep their hands in practice?

Case 1, *boy aged* 13.—A lacerated wound (not contused); ulna fractured in a very comminuted manner. Now, Sir, there is an opinion, that had the case been properly managed, the boy's arm admitted of a fair chance of being saved.

Case 2. *Contusion*,—and for that reason being worse than the other, there should have been a consultation. But no; the surgeon was fearful he would lose his cut! Never thought about saving the arm, but whipped it off ere Mr. Lloyd could be informed of it. The head of the radius broken; elbow-joint injured very little;

compound fracture of both the bones of the fore-arm; not comminuted.

Now these two cases occur in young and healthy youths, and the chances of restoration and recovery in them, compared with a man of 30, is as 20 to 1 in favour of youth.

A skilful surgeon, John Bell, managed the following case, and I have seen worse accidents recover without amputation, than the above cases.

A slater fell from the top of a house; had his life saved by alighting upon his *right hand*. Luxation of one rib. The radius was terribly shattered. The wrist-joint was burst with great violence; the hand hung on one side, and turned, as it were, upon a point; the small end of the ulna projected through the wound, and the hand looked as if spitted on this bone; the hand was shortened by the manner in which the radius had yielded, for it was shattered and broken into small fragments, and so violently was the hand distorted, that the head of the radius was turned out at the wound. Along with the radius, one of the carpal bones projected through the wound; quite separated.

Treatment.—I cut off the end of the radius, took up the bleeding arteries, snipped away the carpal bone, for it hung by a rag of tendon, and laid the flat inside of the fore-arm upon a splint; made a stitch in the lacerated skin of the wrist, and finished by laying a large flat sponge, just a little moistened in spirits, upon the open part of the wound. This closed the laceration so smoothly, that almost the whole of the integuments adhered. The part which failed was the contused part; it suppurated and did well. This man was three months under this able surgeon's care, owing to a knotty swelling which surrounded the wrist, which was very hard to discuss; but at the end of that time he could use his hand pretty freely, and, what was little to be expected, the joint also was restored. He recovered the rotation of the radius, as well as the bending motion of the wrist, and now he finds his hand perfectly useful and strong for work.

Would to God J. Bell had had the two unfortunate boys under his management, for if he could not *certainly* have saved their arms, at any rate he would have given them *a chance*. It is to be hoped that a fuller detail of those cases will be given in your LANCET, to rescue the hospital from the exposé which these boys' friends might occasion, by coming into court for some compensation equivalent to their loss.

JUSTICE.

May 23d, 1832.

UNIVERSITY OF LONDON.

DISTRIBUTION OF PRIZES.*

ON Wednesday, the 16th ult., a numerous meeting of the students and their friends took place in one of the theatres, to witness the distribution of prizes to those gentlemen who had been successful candidates at the previous examinations of the medical classes.

The chair was filled by Dr. Lushington in the absence of the Duke of Sussex, who was prevented attending.

The business of the meeting was opened by Professor Thomson, who read the report of the medical professors for the session, in which he stated that the medical school had answered the expectation formed by his colleagues and himself, two hundred and fifty-two students having attended the medical classes during the session.

The following were the successful candidates:—

Principles and Practice of Medicine.

Professor ELLIOTSON.

Gold Medal—James Wearne, of St. Ives, Cornwall.

1st Silver Medal—J. Storrar, of London.

2nd ditto—John P. Wall, of Ross, Herefordshire.

Anatomy—Prof. QUAIN.

Gold Medal—J. R. Noble, of Hawkeshead, Lancaster.

1st Silver Medal—George Houlton, of Killingholme, Lincolnshire.

2nd ditto—C. Nossoc, of London.

Practical Anatomy.

Mr. R. QUAIN, *Demonstrator.*

Gold Medal—W. Rayner, of Castlemoat, Lincolnshire.

1st Silver Medal—W. K. Wright, of Bristol.

2nd ditto—J. Bartlett, of Great Bedwin, Wilts.

Surgery—Prof. S. COOPER.

Gold Medal—R. Lanyon, of Camborne.

1st Silver Medal—W. Rayner, of Castlemoat, Lincolnshire.

2nd ditto—David Hartley, of Bristol.

Midwifery—Prof. DAVIS.

Gold Medal—G. P. Gill, of London.

1st Silver Medal—W. Rayner, of Castlemoat, Lincolnshire.

2nd ditto—J. N. Hudleston, of London.

* We have delayed publishing this list, in consequence of not having been before furnished with a correct account of the successful students.—ED. L.

Materia Medica—Prof. THOMSON.

Gold Medal—Francis Taylor, of York.

1*st Silver Medal*—M. Forster, of Holywell, Bedfordshire.

2*nd ditto*—G. Allarton, of Warwickshire.

Chemistry—Prof. TURNER.

Gold Medal—D. B. Meek, of London.

1*st Silver Medal*—Henry Cook, of Hampstead.

2*nd ditto*—A. M. A'Beckett, of London.

Comparative Anatomy—Prof. GRANT.

Gold Medal—D. W. Nash, of Bristol.

Silver Medal—J. Storrar, of London.

Medical Jurisprudence.

Professors THOMSON and AMOS.

The Prize—P. H. Chavasse, Birmingham.

Botany—Prof. LINDLEY.

Gold Medal—R. B. Hinds, of London.

Silver Medal—J. H. Rogers, of London.

Each gentleman having received from the President the honour awarded to him, the President, in a short and excellent address, testified the pleasure he felt on the present occasion, in distributing the rewards of merit. He proceeded to state that the Council felt, equally with the professors, the necessity for a hospital, and he might say things were in such a situation now, that it would not be long before they had one. The situation seemed greatly in want of one, being surrounded by a densely-populated neighbourhood; and it was only reasonable to conclude, that the benevolence of the public would assist their efforts in such humane intentions. He concluded by exhorting the students to preserve the same honourable course which had this day gained them distinction, and they would do honour to the school to which they were attached; so by their assistance, and the broad principles on which the institution was founded, the University of London must prosper.

PRIZES TO THE MEATH HOSPITAL PUPILS.

On Saturday, the 29th of April last, the annual distribution of premiums to the medical students of the Meath Hospital took place, when premiums were awarded to the following gentlemen, by Dr. Graves and Dr. Stokes, physicians to the hospital.

1st premium, Mr. Alfred Hudson.
2nd ditto Mr. Thomas Purefoy.
3rd ditto Mr. — Fullaker.

No pupil can obtain a premium at this hospital who has not been engaged in taking cases and making daily clinical reports to the attending physician for at least six months. By this means tolerably constant attendance, at least, is ensured.

FILTHY STATE OF DISSECTING ROOMS.

To the Editor of THE LANCET.

SIR,—You have so often shown yourself to be the student's friend, and the corrector of mismanagement and abuse in the public schools of this metropolis, that I do not hesitate to appeal to you upon a subject which may appear to some to merit but little notice, but which to me and to many of my fellow-students is an intolerable nuisance. I allude to the filthy state of some of the anatomical schools, but more particularly the one in Little Windmill-street. Upon entering the dissecting-rooms, the museum, &c., the nose is assailed by a "compound of villanous smells" not to be described. Is this to be wondered at, when putrid animal matter may be seen in every corner dragged by the rats (which abound in this building) even from the dissecting tables? As to a mop or a broom it would be a perfect *rara avis* in this establishment. I should be sorry to be considered as more fastidious than my brother students, but I do say, that the health of the pupils ought to be considered, and therefore that there should be a plentiful supply of water, and that the utmost cleanliness should be observed. Trusting to your kindness in permitting this short letter to appear in your journal,

I am, Sir, your very humble Servant,
A WEST END PUPIL.

DR. KNIGHT'S PAPER, PAGE 300.

The Editor has been requested to add the following note to Dr. Knight's account of "Three cases of Incipient Cholera," published at page 300 of the present number of THE LANCET. The note reached us too late to be appended to the paper itself:—

"In all the cases the urine was nearly, if not wholly, suppressed, not more than two or three tablespoonfuls having been voided, from the commencement of violent vomiting till its cessation from the effect of the alkaline salt, which in one case was in about ten hours."

CORRESPONDENTS, &c.

The letter of *Mr. Sharp* can only appear on the cover, and must be accompanied by a London order for payment.

We shall shortly review the work, some points in which are so sharply handled by *Testor*. For that reason we make no use of his letter.

Medicus. A part of the list appears in another form. For more than this we have not space.

A Constant Reader. The remainder of the letter is a pure advertisement.